

Unit 1: Whole Numbers and Operations

Learning Check 1.1

1. Place commas in the following numbers.

- | | | | |
|-----------|-----------------|-----------|-----------------|
| a) 523216 | Answer: 523,216 | b) 597630 | Answer: 597,630 |
| c) 241344 | Answer: 241,344 | d) 624012 | Answer: 624,012 |
| e) 213609 | Answer: 213,609 | f) 768743 | Answer: 768,743 |
| g) 221451 | Answer: 221,451 | h) 230005 | Answer: 230,005 |
| i) 103345 | Answer: 103,345 | j) 613458 | Answer: 613,458 |
| k) 789777 | Answer: 789,777 | l) 368945 | Answer: 368,945 |

2. Write the value of each underlined digit in these numbers.

- a) 845,132 Answer: The digit 5 is in the thousands place.
So, its value is: $5 \times 1000 = 5000$
- b) 945,456 Answer: The digit 6 is in the ones place.
So, its value is: $6 \times 1 = 6$
- c) 143,345 Answer: The digit 4 is in ten thousands place.
So, its value is: $4 \times 10,000 = 40,000$
- d) 986,456 Answer: The digit 9 is in the hundreds thousands place.
So, its value is: $9 \times 100,000 = 900,000$
- e) 944,763 Answer: The digit 4 is in ten thousands place.
So, its value is: $4 \times 10,000 = 40,000$
- f) 706,661 Answer: The digit 6 is in the hundreds place.
So, its value is: $6 \times 100 = 600$

3. Read these numbers and write them in words.

- a) 456,343 Answer: Four hundred and fifty six thousand, three hundred and forty-three.
- b) 275,234 Answer: Two hundred and seventy five thousand, two hundred and thirty-four.
- c) 324,786 Answer: Three hundred and twenty four thousand, seven hundred and eighty-six
- d) 874,421 Answer: Eight hundred and seventy four thousand, four hundred and twenty-one.

e) 245,678 Answer: Two hundred and forty-five thousand, six hundred and seventy-eight.

f) 900,111 Answer: Nine hundred thousand, one hundred and eleven.

4. Write these numbers in figures.

a) Three hundred and twenty-six thousand, nine hundred and one.

Answer: 326,901

b) Nine hundred thousand, two hundred and five.

Answer: 900,205

c) Seven hundred and thirty-three thousand and thirty-two.

Answer: 733,032

d) Three hundred and sixty-one thousand, four hundred and two.

Answer: 361,402

e) Eight hundred and five thousand, one hundred and nine.

Answer: 805,109

5. Write the following in expanded form.

a) 324,345 Answer: $300,000 + 20,000 + 4,000 + 300 + 40 + 5$

b) 567,008 Answer: $500,000 + 60,000 + 7,000 + 000 + 00 + 8$

c) 144,089 Answer: $100,000 + 40,000 + 4,000 + 000 + 80 + 9$

d) 460,692 Answer: $400,000 + 60,000 + 0,000 + 600 + 90 + 2$

e) 951,205 Answer: $900,000 + 50,000 + 1,000 + 200 + 00 + 5$

Learning Check 1.2

1. Compare these numbers by using the symbols $<$, $>$ or $=$.

a) 99,453 87, 211

Answer: Compare the digits in the ten-thousands place. As 9 is greater than 8, (i.e. $9 > 8$) so, 99,453 87,211.

b) 52,556 42,889

Answer: Compare the digits in the ten-thousands place. As 5 is greater than 4, (i.e. $5 > 4$) so, 52,556 42,889.

c) 45,111 54,311

Answer: Compare the digits in the ten-thousands place. As 4 is smaller than 5, (i.e. $4 < 5$) so, 45,111 54,311.

d) 64,154 64,154

Answer: As the digits in every place are same so 64,154 is equal to 64,154, (i.e. $64,154 = 64,154$).

e) 32,567 32,900

Answer: As the digits in the thousands and ten thousands place are same. So, we will compare the digits in the hundreds place. As 5 is smaller than 9 (i.e. $5 < 9$), so 32,567 32,900.

f) 34,658 34,688

Answer: As the digits in the ten thousands, thousands and hundreds place are same. So, we will compare the digits in the tens place. As 5 is smaller than 8 (i.e. $5 < 8$), so 35,658 34,688.

2. Arrange these numbers in ascending order.

a) 24,938 19,318 16,287

Answer: Compare the digits in the hundred thousands place. The digit 2 is greater than 1 (i.e. $2 > 1$), so 24,938 is the greatest number. In the remaining numbers, the digits in the hundred thousands place are same. So, we will compare the digits in the thousands place. The digit 9 is greater than 6 (i.e. $9 > 6$) so, 16,287 is the smallest number. To arrange the numbers in ascending order, we write them from smallest to the greatest. So, 16,287, 19,318, 24,938.

b) 93,181 8218 83,848 93,118

Answer: Compare the digits in the ten thousands place. As 8218 has no digit in the ten thousands place, so it is the smallest number. In remaining numbers 9 is greater than 8 (i.e. $9 > 8$) so 83,848 is the smallest among these three numbers.

Now, in 93,181 and 93118 as the digits in the ten thousands, thousands and hundreds place are same, so we compare the digits in the tens place. As 8 is greater than 1 (i.e. $8 > 1$). So 93,181 is the greatest number. Therefore, in ascending order we will write them as:

8218, 83,848, 93,118, 93,181

c) 44,180, 28,905, 59,521, 46,998, 8719

Answer: Compare the digits in the ten thousands place. As 8719 has no digits in the ten thousands place, so it is the smallest number. In the remaining numbers, the digit 5 is greater than 2 and 4, so 59,521 is the greatest number. Also the digit 2 is smaller than 5 and 4, so 28,905 is the smallest number. Now, in 44,180 and 46,998, the digits at ten thousands place are same. So, we will compare the digits in the thousands place. As 4 is smaller than 6 (i.e. $4 < 6$) so 44,180 is smallest number:

8719, 28905, 44180, 46,998, 59,521

d) 37,864, 37,318, 37,808, 37, 880

Answer: The digits at ten thousands and thousands place are same. Comparing the digits at the hundreds place 3 is smaller than 8 (i.e. $3 < 8$), so 37,318 is the smallest number. In remaining numbers, as the digits at hundreds place are same, so we will compare the digits at tens place. As 0 is smaller than 6 and 8, so 37808 is the smallest number among these three numbers. As 8 is greater than 6 and 0 (i.e. $8 > 6$ and $8 > 0$) so 37,880 is the greatest number. In ascending order, we start from the smallest number:

37,318 37,808 37,864 37,880

3. Arrange these numbers in descending order.

a) 93,951 87,035 82,223

Answer: Compare the digits in ten thousands place. As 9 is greater than 8 (i.e. $9 > 8$) so 93,951 is the greater number. In remaining numbers, the digits in the ten thousand place are same. So we compare the digits in the thousands place. As 7 is greater than 2 (i.e. $7 > 2$), so 82,223 is the smallest number. To arrange the numbers in descending order, we write them from the greatest to the smallest number:

93,951 87,035 82,223

b) 47,138 46,198 48,168 49,861

Answer: As digits in the ten thousands place are same. So we compare the digits in the thousands place. As 9 is greater than 6, 7 and 8. (i.e. $9 > 8$, $9 > 7$ and $9 > 6$) so 49,861 is greatest number. Also, as 6 is smaller than 7 and 8 (i.e. $6 < 7$ and $6 < 8$) so 46,198 is the smallest number. In remaining numbers, as 7 is smaller than 8 (i.e. $7 < 8$), so 47,138 is smaller than 48,168. In descending order, we will write them as:

49,861 48,168 47,138 46,198

c) 80,183, 8842, 79,810, 69,018, 96,183

Answer: Compare the digits in the ten thousands place. 8842 has no digit in the ten thousands place. So it is the smallest number. In the remaining numbers 9 is greater than 6, 7 and 8. So 96,183 is the greatest number. In the remaining numbers, as 8 is greater than 7 and 6 (i.e. $8 > 7$ and $8 > 6$), so 80,183 is the second greatest number. In the remaining numbers, as 7 is greater than 6 so 79,810 is greater than 69,018. In descending order, we write the numbers from the greatest to the smallest. So, 96,183, 80,183, 79,810, 69,018, 8842.

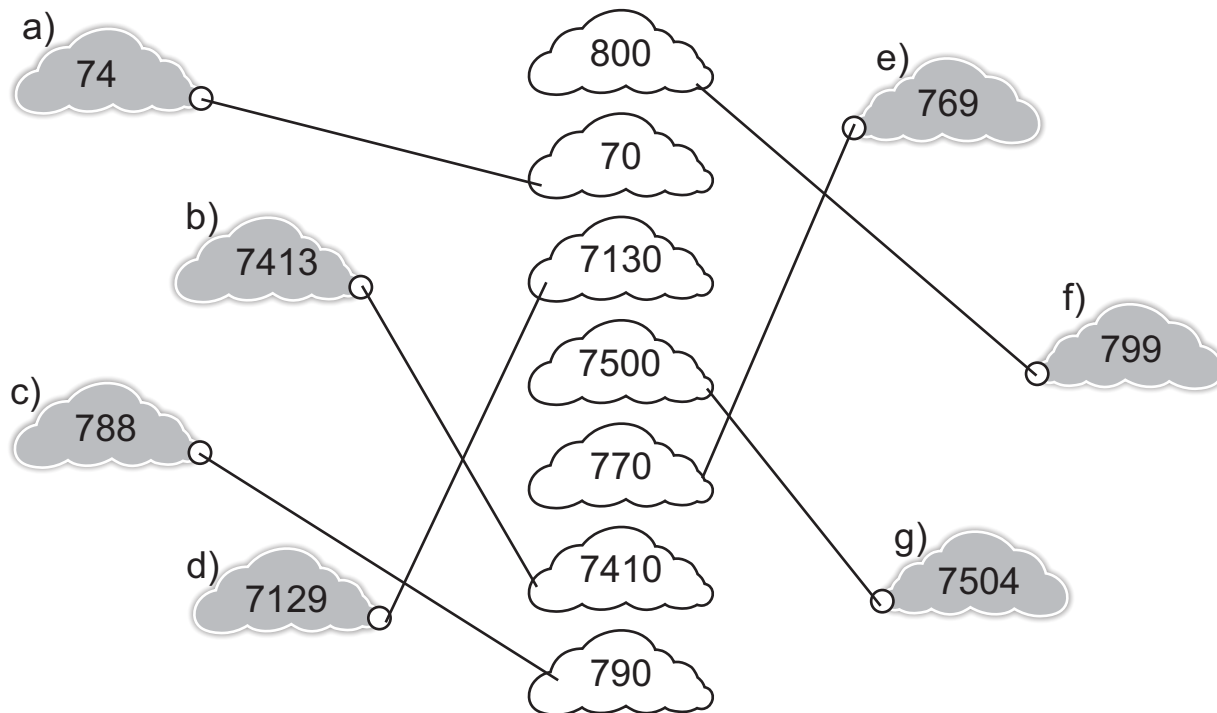
d) 31,308 3083 38,180 32,038

Answer: The number 3083 has no digit in the ten thousands place, so it is the smallest number. In remaining numbers, the digits at ten thousands place are same, so we compare the digits at thousands place. As 8 is greater than 2 and 1 (i.e. $8 > 2$ and $8 > 1$) so 38,180 is the greatest number. As 1 is smaller than 8 and 2 (i.e. $1 < 2$ and $1 < 8$), so 31,308 is the smaller of these three numbers. So, in descending order we write these four numbers as:

38,180 32,038 31,308 3083

Learning Check 4.6

1. Draw an arrow to match each number to its nearest 10.



2. Look at the numbers in the apples. Round off these to the nearest 100 and then fill in the boxes.

612

660

243

209

599

142

a) Which numbers round to 200? Answer: 243 and 209

b) Which numbers round to 600? Answer: 612 and 599

3. Write 8 numbers that round to 7000 (when rounded off to the nearest 1000). One digit of each number is written for you.

a) 7025

b) 6889

c) 7298

d) 6750

e) 6934

f) 6860

g) 7149

h) 6659

Unit Check 1.1

1. Encircle the correct options.

a) (iii) 999,999

b) (iv) 100,000

c) (i) left to right

d) (ii) 36,009

e) (iii) 60,000

2. Place commas in the following numbers.

- a) 674352 Answer: 674,352 b) 753648 Answer: 753,648
c) 523741 Answer: 523,741 d) 152376 Answer: 152,376

3. Write the place value of the coloured digit in each of these numbers:

- a) 582,462

Answer:

The digit 2 is at ones place. So, its place value is "Ones".

- b) 44,963

Answer:

The digit 9 is at hundreds place. So, its place value is "hundreds".

- c) 199,248

Answer:

The digit 1 is at hundred thousands place. So, its place value is "hundred thousands".

- d) 464,681

Answer:

The digit 6 is at ten thousands place. So, its place value is "ten thousands".

4. Read these numbers and write them in words.

- a) 934,178

Answer:

Nine hundred and thirty four thousand, one hundred and seventy eight.

- b) 475,375

Answer:

Four hundred and seventy five thousand, three hundred and seventy five.

- c) 187,434

Answer:

One hundred and eighty seven thousand, four hundred and thirty four.

- d) 901,815

Answer:

Nine hundred and one thousand, eight hundred and fifteen.

5. Write these numbers in figures.

- a) Four thousand and seventy-two thousand, two hundred and seven.

Answer: 472,207

b) Three hundred and one thousand, five hundred and nine.

Answer: 301,509

c) Eight hundred thousand, six hundred and six.

Answer: 800,606

d) Two hundred and fifty-two thousand, seven hundred and four.

Answer: 252,704

6. Compare these numbers using the correct symbol $>$, $<$ or $=$.

(a) 85389 30788

Answer:

Compare the digits in the ten thousands place. As 8 is greater than 3

(i.e. $8 > 3$) So, 85389 30788

(b) 70340 70349

Answer:

As the digits in the ten thousands, thousands and tens place are same,

So we compare the digits in the ones place. As 0 is smaller than 9, So,

70340 70349

(c) 64964 60302

Answer:

As the digits in the ten thousands, place are same, so we compare the digits in the thousands place. As 4 is greater than, 0, So,

64964 60302

7. Arrange these numbers in ascending order.

a) 98,234 99,474 99,108

Answer:

As digits in the ten thousands place are same, so we compare the digits in the thousands place. As 8 is smaller than 9, so 98,234 is the smallest number. In the remaining numbers, the digits in the thousands place are same, so we compare the digits in the hundreds place.

As 4 is greater than 1 (i.e. $4 > 1$) so, 99,474 is greater than 99,108

(i.e. $99,474 > 99,108$). In descending order we will write them as.

98,234 99,108 99,474

b) 67,279 62,605, 66,126

Answer:

As digits in the ten thousands place are same, so we compare the digits in the thousands place. As 7 is greater than 2 and 6, (i.e $7 > 2$ and $7 > 6$) so 67,279 is the greatest number.

As 2 is smaller than 7 and 6 ($2 < 7$ and $2 < 6$) so 62,605 is the smallest number. In ascending order 62,605 66,126 67,279

8. Arrange these numbers in descending order.

a) 28,672 29,109 17,258

Answer:

Compare the digits in the ten thousands place. As 1 is smaller than 2 (i.e $1 < 2$) so, 17,258 is the smallest number. As digits in the ten thousands place of the remaining numbers are same, so we compare the digits in the thousands place. As 8 is smaller than 9 (i.e. $8 < 9$) so 29,672 is smaller than 29,109. In descending order, we write them from greatest to smallest number.

29,109 28,672 17,258
b) 56,690 24,588 33,890

Answer:

Compare the digits in the ten thousands place. As 5 is greater than 2 and 3 (i.e. $5 > 2$ and $5 > 3$) so 56,690 is the greater number. As 3 is greater than 2 (i.e. $3 > 2$) so 33,890 is greater than 24,588. In descending order.

56,690 33,890 24,588

9. Round off the following to the nearest whole number.

a) 5.92

answer:

5.92
= 6

b) 9.01

answer:

9.01
= 9

c) 4.57

answer:

4.57
= 5

Unit 1: Addition and Subtraction

Learning Check 1.4

1. Add the following.

a)

T. Th	Th	H	T	O
^① 6	9	^① 3	^① 8	4
+	6	5	9	6
7	5	9	8	0

b)

T. Th	Th	H	T	O
^① 3	7	4	^① 2	3
+	4	0	4	7
4	1	4	7	0

c)

T. Th	Th	H	T	O
1	^① 0	^① 8	6	5
+	3	3	5	4
1	4	2	1	9

d)

T. Th	Th	H	T	O
7	^① 0	^① 9	7	1
+ 1	7	8	9	2
8	8	8	6	3

e)

T. Th	Th	H	T	O
^① 5	8	^① 3	8	7
+ 1	9	3	9	2
7	7	7	7	9

f)

T. Th	Th	H	T	O
1	^① 4	^① 7	4	7
+ 2	0	5	8	0
3	5	3	2	7

g)

T. Th	Th	H	T	O
^① 2	^① 6	^① 4	^① 4	4
+ 5	7	7	6	8
8	4	2	1	2

h)

T. Th	Th	H	T	O
2	7	^① 5	^① 9	3
+ 6	0	0	6	7
8	7	6	6	0

i)

T. Th	Th	H	T	O
3	3	2	1	6
+ 3	1	4	8	3
6	4	6	9	9

j)

T. Th	Th	H	T	O
^① 1	^① 5	9	5	8
+ 3	9	6	0	1
5	5	5	5	9

k)

T. Th	Th	H	T	O
^① 1	^① 8	^① 9	^① 9	8
+ 1	3	7	5	4
3	2	7	5	2

l)

T. Th	Th	H	T	O
2	^① 0	^① 6	^① 4	8
+ 1	1	9	6	3
3	2	6	1	1

m)

T. Th	Th	H	T	O
2	1	^① 3	^① 5	9
+3	0	4	7	8
5	1	8	3	7

n)

T. Th	Th	H	T	O
2	^① 1	7	^① 3	8
+3	0	9	0	2
5	2	6	4	0

m)

T. Th	Th	H	T	O
^① 5	^① 6	^① 5	8	0
+2	3	8	5	5
8	0	4	3	5

2. Solve the following.

a) $18958 + 53108$

solution: to add,

First we write the numbers vertically.

T. Th	Th	H	T	O
^① 1	^① 8	9	^① 5	8
+5	3	1	0	8
7	2	0	6	6

b) $34886 + 20187$

solution:

To add, first we write these numbers vertically

T. Th	Th	H	T	O
3	^① 4	^① 8	^① 8	6
+2	0	1	8	7
5	5	0	7	3

c) $24181 + 40548$

solution:

T. Th	Th	H	T	O
2	4	^① 1	8	1
+4	0	5	4	8
6	4	7	2	9

d) $27381 + 67484$

solution:

T. Th	Th	H	T	O
^① 2	7	^① 3	8	1
+ 6	7	4	8	4
9	4	8	6	5

e) $34756 + 21741$

solution:

T. Th	Th	H	T	O
3	^① 4	7	5	6
+ 2	1	7	4	1
5	6	4	9	7

f) $76554 + 18976$

solution:

T. Th	Th	H	T	O
^① 7	^① 6	^① 5	^① 5	4
+ 1	8	9	7	6
9	5	5	3	0

3. Mr Adnan donated Rs 17,565 for needy people and Rs 22,755 to the Eidhi center. How much did he donate altogether?

Solution:

$$\begin{array}{rcl}
 \text{Mr. Adnan donated for needy people} & = & \text{Rs } \overset{\textcircled{1}}{1}\overset{\textcircled{1}}{7}\overset{\textcircled{1}}{5}\overset{\textcircled{1}}{6}\overset{\textcircled{1}}{5} \\
 \text{He donated to Eidhi center} & = & + \text{Rs } 22,755 \\
 \text{He donated altogether} & = & \underline{\underline{\text{Rs } 40,320}}
 \end{array}$$

So, Mr Adnan donated Rs 40,320 altogether.

- 4. Dania bought a laptop for Rs. 48,765 from her savings. Now, she is left with Rs. 50,578. What was her saving before buying the laptop?**

Solution:

$$\begin{array}{rcl} \text{Dania bought a laptop for} & = & \text{Rs. } 48,765 \\ \text{Her savings after buying a laptop} & = & + \text{Rs. } 50,578 \\ \hline \text{Her savings before buying the laptop} & = & \text{Rs. } 99,343 \end{array}$$

So Dania's savings before buying the laptop were Rs. 99,343.

- 5. A factory produces 17,250 carry-on bags and 40,450 handbags in a year. Find the total number of bags produced?**

Solution:

$$\begin{array}{rcl} \text{Carry-on bags produced} & = & 17,250 \\ \text{Hand bags produced} & = & + 40,450 \\ \hline \text{Total number of bags produced} & = & 57,700 \end{array}$$

So the total number of bags produced is 57,700.

- 6. On Saturday, 42,562 people offered prayers in Badshahi Mosque. The next day, 65,899 people offered prayers. How many people offered prayers on both days altogether?**

Solution:

$$\begin{array}{rcl} \text{No. of people who offered prayers on saturday} & = & 42,562 \\ \text{No. of people who offered prayers on next day} & = & + 65,899 \\ \hline \text{No. of people who offered prayers on both days altogether} & = & 108,461 \end{array}$$

So the number of people who offered prayers on both days altogether in Badshahi Mosque is 108,461.

Learning Check 1.5

1. Subtract the following.

a)

T. Th	Th	H	T	O
7	9	9	5	7
–		2	6	3
7	7	3	2	6

b)

T. Th	Th	H	T	O
7	4 ^③	2 ^①	6 ^⑤	1 ^①
–		3	5	1
7	0	7	4	3

c)

T. Th	Th	H	T	O
8	8	4 ^③	5 ^①	4
–	6	4	1	8
2	4	2	7	3

d)

T. Th	Th	H	T	O
5	1 ^⑧	2 ^①	2 ^①	8
–	4	0	5	6
1	0	6	6	7

e)

T. Th	Th	H	T	O
4	5	8 ^⑦	7 ^①	4
–	1	5	4	8
3	0	3	9	2

f)

T. Th	Th	H	T	O
7	9	9 ^⑧	0 ^①	3 ^①
–	2	2	5	9
5	7	3	0	9

g)

T. Th	Th	H	T	O
9	9 ^⑧	7 ^①	3 ^①	6
–	5	7	7	3
4	1	9	6	3

h)

T. Th	Th	H	T	O
8 ^⑦	3 ^①	1 ^①	3 ^①	4 ^①
–	7	6	4	8
0	6	6	4	9

i)

T. Th	Th	H	T	O
3	6	4 ^③	2 ^①	3
–	1	2	3	3
2	4	0	8	4

j)

T. Th	Th	H	T	O
5 ^④	3 ^①	9 ^⑧	1 ^①	8
–	3	5	4	9
1	8	4	2	0

k)

T. Th	Th	H	T	O
7 ^⑥	2 ^①	0	8 ^⑦	8 ^①
–	1	5	7	4
5	6	3	3	9

l)

T. Th	Th	H	T	O
2	5	4	9	5
–	1	2	2	3
1	3	2	6	4

m)

	T. Th	Th	H	T	O
	1	⁷ 8	¹ 0	¹ 2	¹ 0
–	1	1	2	2	2
	0	6	7	9	8

o)

	T. Th	Th	H	T	O
	6	⁰ 1	¹ 4	⁴ 5	¹ 0
–	5	0	8	4	3
	1	0	6	0	7

n)

	T. Th	Th	H	T	O
	8	7	9	8	6
–	5	0	8	4	3
	3	7	1	4	3

As 3 is smaller than 4, so we need to borrow. First we borrow one hundred as 10 tens. Then we borrow one ten as 10 ones. Add them in 3 ones and subtract 4 ones from 13 ones.

2. Solve the following.

a) 62189 – 48649

Solution: To subtract,

First we write them vertically

	T. Th	Th	H	T	O
	⁵ 6	¹ 2	¹ 1	8	9
–	4	8	6	4	9
	1	3	5	4	0

c) 73646 – 38591

First we write them vertically

	T. Th	Th	H	T	O
	⁶ 7	¹ 3	⁵ 6	¹ 4	6
–	3	8	5	9	1
	3	5	0	5	5

e) 84686 – 46837

First we write them vertically

	T. Th	Th	H	T	O
	⁷ 8	¹ 4	¹ 6	⁷ 8	¹ 6
–	4	6	8	3	7
	3	7	8	4	9

b) 92624 – 91690

Solution:

	T. Th	Th	H	T	O
	9	¹ 2	¹ 6	¹ 2	4
–	9	1	6	9	0
	0	0	9	3	4

d) 79664 – 53976

Solution:

	T. Th	Th	H	T	O
	7	⁸ 9	¹ 6	¹ 6	¹ 4
–	5	3	9	7	6
	2	5	6	8	8

f) 93564 – 83706

Solution:

	T. Th	Th	H	T	O
	⁸ 9	¹ 3	¹ 5	⁵ 6	¹ 4
–	8	3	7	0	6
	0	9	8	5	8

3. **Madeeha had Rs 77,500 in her bank account. She withdrew Rs 41,585 from it. Find the amount left in her account.**

Solution:

$$\begin{array}{rcl}
 \text{Madeeha had in her bank account} & = & \text{Rs } 77,500 \\
 \text{She withdrew from her account} & = & -\text{Rs } 41,585 \\
 \text{Amount left in her account} & = & \underline{\text{Rs } 35,915}
 \end{array}$$

So Madeeha had Rs. 35,915 left in her account.

4. **A factory manufactured 84,780 USB drives in 6 months. If 39,876 USB drives were manufactured in the first three months, how many USB drives were manufactured in the last three months?**

Solution:

$$\begin{array}{rcl}
 \text{USB drives manufactured in 6 months} & = & 84,780 \\
 \text{USB drives manufactured in first three months} & = & -39,876 \\
 \text{USB drives manufactured in last three months} & = & \underline{44,904}
 \end{array}$$

So 44,904 USB drives were manufactured in the last three months.

5. **Out of 66,178 kinds of vertebrates, 21,136 are reptiles and birds. How many other vertebrates are there besides reptiles and birds?**

Solution:

$$\begin{array}{rcl}
 \text{Kinds of vertebrates} & = & 66,178 \\
 \text{Number of reptiles and birds} & = & -21,136 \\
 \text{Number of other vertebrates} & = & \underline{45,042}
 \end{array}$$

So there are 45,042 other vertebrates besides reptiles and birds.

6. **92,356 vehicles crossed a toll plaza during two days. If 42,389 vehicles crossed it on the first day, how many vehicles crossed the toll plaza on the second day?**

Solution:

$$\begin{array}{rcl}
 \text{No. of vehicles which crossed toll plaza in two days} & = & 92,356 \\
 \text{No. of vehicles which crossed toll plaza on the first day} & = & -42,389 \\
 \text{No. of vehicles which crossed toll plaza on the second day} & = & \underline{49,967}
 \end{array}$$

Unit Check 1.2

1. Encircle the correct options.

- a) (iii) 54,235 and 66,610
 c) (i) 29,677
 e) (iii) 89,999

- b) (iv) minuend
 d) (ii) 47,771

2. Solve the following.

a)

T. Th	Th	H	T	O
^① 7	^① 9	^① 1	^① 2	4
+ 5	7	9	9	9
1 3	7	1	2	3

b)

T. Th	Th	H	T	O
2	0	3	3	3
+ 6	0	0	1	4
8	0	3	4	7

c)

T. Th	Th	H	T	O
^① 5	^① 6	^① 3	9	8
+ 3	7	6	4	0
9	4	0	3	8

d)

T. Th	Th	H	T	O
^⑧ 9	^① 0	2	6	5
− 2	1	2	4	2
6	9	0	2	3

e)

T. Th	Th	H	T	O
6	8	^⑦ 8	^① 3	^① 3
− 1	7	1	6	8
5	1	6	6	5

f)

T. Th	Th	H	T	O
4	6	^⑥ 7	^① 0	8
− 4	4	6	2	3
0	2	0	8	5

3. Solve these.

a) $34546 + 60541$

solution:

T. Th	Th	H	T	O
3	^① 4	5	4	6
+ 6	0	5	4	1
9	5	0	8	7

b) $97654 - 83976$

solution:

T. Th	Th	H	T	O
9	^⑧ 7	^① 6	^① 5	^① 4
− 8	3	9	7	6
1	3	6	7	8

c) $74456 - 65541$

T. Th	Th	H	T	O
^⑧ 7	^① 4	^① 4	5	6
− 6	5	5	4	1
0	8	9	1	5

d) $53654 + 18976$

T. Th	Th	H	T	O
^① 5	^① 3	^① 6	^① 5	4
+ 1	8	9	7	6
7	2	6	3	0

4. The total cost of two vacuum cleaners is Rs 84,456. If one vacuum cleaner costs Rs 27,560, find:

a) the cost of the other vacuum cleaner.

Solution:

$$\begin{array}{rcl}
 \text{Total cost of two vacuum cleaners} & = & \text{Rs } \overset{7}{8} \overset{1}{4} \overset{1}{4} \overset{1}{5} 6 \\
 \text{Cost of one vacuum cleaner} & = & - \text{Rs } 27560 \\
 \hline
 \text{Cost of other vacuum cleaner} & = & \text{Rs } 56896
 \end{array}$$

So, the cost of other vacuum cleaner is Rs 56,896.

b) the difference between the cost of the two vacuum cleaners.

Solution:

Cost of one vacuum cleaner = Rs 27,560

Cost of second vacuum cleaner = Rs 56,896

The difference between the costs of two vacuum cleaner = ?

To find the difference between two values, we subtract the smaller value from the greater value. So,

$$\begin{array}{rcl}
 \text{Cost of one vacuum cleaner} & = & \text{Rs } \overset{4}{5} \overset{1}{6} 896 \\
 \text{Cost of second vacuum cleaner} & = & - \text{Rs } 27560 \\
 \hline
 \text{Difference between costs} & = & \text{Rs } 29336
 \end{array}$$

So, the difference between of cost of two vacuum cleaner is Rs. 29,336.

5. A hardware store had 92,568 steel nails. During the first week, 38,576 nails were sold. In the second week, 45,234 nails were sold. Find:

a) how many nails are left unsold?

Solution:

To find how many nails are left unsold, first we have to find the total number of nails which are sold in both weeks. So we add them,

$$\begin{array}{rcl}
 \text{Nails sold in first week} & = & \overset{1}{3} 8 \overset{1}{5} \overset{1}{7} 6 \\
 \text{Nails sold in second week} & = & + 45234 \\
 \hline
 & = & 83810
 \end{array}$$

So, 83,810 nails were sold altogether in the two weeks. Now, to find the number of nails unsold, we subtract the number of nails sold altogether in two weeks from total number of nails. Therefore,

$$\begin{array}{r} \text{Total number of nails} = \begin{array}{r} \textcircled{8}9 \textcircled{1}2 \textcircled{1}5 \ 6 \ 8 \\ \text{Nails sold in two weeks} = \begin{array}{r} 8 \ 3 \ 8 \ 1 \ 0 \\ \hline \text{Number of nails unsold} = \begin{array}{r} 0 \ 8 \ 7 \ 5 \ 8 \end{array} \end{array} \end{array}$$

So, number of nails unsold is equal to 8,758.

b) How many less nails were sold during the first week than in the second week?

To find the difference between the quantity of nails sold in two weeks, we subtract the lesser quantity from the greater one.

$$\begin{array}{r} \text{Nails sold during second week} = \begin{array}{r} \textcircled{1}4 \ 5 \textcircled{1}2 \textcircled{1}3 \ 4 \\ \text{Nails sold during 1st week} = \begin{array}{r} - \ 3 \ 8 \ 5 \ 7 \ 6 \\ \hline = \begin{array}{r} 0 \ 6 \ 6 \ 5 \ 8 \end{array} \end{array} \end{array}$$

So, 6,658 less nails were sold in the first week than in the second week.

6. The number of people who visited a zoo during February was 75,060 and during June was 22,785. Find:

a) The total number of people who visited the zoo during the two months.

Solution:

$$\begin{array}{r} \text{Number of visitors in February} = \begin{array}{r} 7 \ 5 \textcircled{1}0 \ 6 \ 0 \\ \text{Number of visitors in June} = \begin{array}{r} + \ 2 \ 2 \ 7 \ 8 \ 5 \\ \hline \text{Total no. of visitors during two months} = \begin{array}{r} 9 \ 7 \ 8 \ 4 \ 5 \end{array} \end{array} \end{array}$$

So, the total no. of people who visited the zoo during two months is equal to 97,845.

b) How many more people visited in February than in June?

Solution:

To find how many more people visited in February than in June. We have to find the difference in the number of visitors in both months.

$$\begin{array}{r} \text{Number of visitors in February} = \begin{array}{r} 7 \ \textcircled{1}5 \ \textcircled{1}0 \ \textcircled{1}6 \ \textcircled{1}0 \\ \text{Number of visitors in June} = \begin{array}{r} - \ 2 \ 2 \ 7 \ 8 \ 5 \\ \hline \text{Difference} = \begin{array}{r} 5 \ 2 \ 2 \ 7 \ 5 \end{array} \end{array} \end{array}$$

So, 52,275 more people visited in February in June.

Multiplication and Division

Learning Check 1.5

1. Multiply to find the product of the following.

$$\begin{array}{r} \text{a)} \quad \overset{3}{5} \overset{1}{8} 8 \\ \times \quad 42 \\ \hline 1176 \\ 23520 \\ \hline 24696 \end{array}$$

First multiply 588 by 2 ones

$$\begin{array}{r} \overset{1}{5} \overset{1}{8} 8 \\ \times \quad 2 \\ \hline 1176 \end{array}$$

Then multiply 588 by 4 tens

$$\begin{array}{r} \overset{3}{5} \overset{3}{8} 8 \\ \times \quad 40 \\ \hline 23520 \end{array}$$

Then add them

$$\begin{array}{r} 1176 \\ + 23520 \\ \hline 24696 \end{array}$$

$$\begin{array}{r} \text{b)} \quad \overset{2}{6} \overset{2}{4} 4 \\ \times \quad 53 \\ \hline \overset{1}{1}932 \\ + 32200 \\ \hline 34132 \end{array}$$

$$\begin{array}{r} \text{c)} \quad \overset{3}{7} \overset{5}{7} 0 \\ \times \quad 58 \\ \hline \overset{1}{6}160 \\ + 38500 \\ \hline 44660 \end{array}$$

$$\begin{array}{r} \text{d)} \quad \overset{2}{5} \overset{2}{5} 7 \\ \times \quad 43 \\ \hline 1\overset{1}{6}71 \\ + 22280 \\ \hline 23951 \end{array}$$

$$\begin{array}{r} \text{e)} \quad \overset{1}{2} \overset{5}{1} 60 \\ \times \quad 990 \\ \hline 0000 \\ \overset{1}{1}94400 \\ + \overset{1}{1}944000 \\ \hline 2138400 \end{array}$$

$$\begin{array}{r} \text{f)} \quad \overset{2}{9} \overset{2}{2} 387 \\ \times \quad 331 \\ \hline 92387 \\ \overset{1}{2}771610 \\ + \overset{1}{2}7716100 \\ \hline 30487710 \end{array}$$

$$\begin{array}{r} \text{g)} \quad \overset{3}{4} \overset{1}{6} \overset{1}{3} 3 \\ \times \quad 115 \\ \hline \overset{1}{2}3165 \\ 46330 \\ + \overset{1}{4}63300 \\ \hline 532795 \end{array}$$

$$\begin{array}{r}
 \text{h)} \quad \begin{array}{r}
 \begin{array}{cccc}
 & \textcircled{1} & \textcircled{2} & \textcircled{2} \\
 & \textcircled{3} & \textcircled{4} & \textcircled{4} \\
 7 & 4 & 5 & 5 \\
 \times & 4 & 1 & 8 \\
 \hline
 \textcircled{1} 5 & 9 & 6 & 4 & 0 \\
 & 7 & 4 & 5 & 5 & 0 \\
 + \textcircled{1} 2 & \textcircled{2} 9 & 8 & 2 & 0 & 0 & 0 \\
 \hline
 3 & 1 & 1 & 6 & 1 & 9 & 0
 \end{array}
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{i)} \quad \begin{array}{r}
 \begin{array}{cccc}
 \textcircled{3} & \textcircled{3} & \textcircled{5} & \textcircled{3} \\
 1 & 4 & 4 & 8 & 5 \\
 \times & & 1 & 7 \\
 \hline
 1 & 0 & \textcircled{1} 1 & \textcircled{1} 3 & 9 & 5 \\
 + 1 & 4 & 4 & 8 & 5 & 0 \\
 \hline
 2 & 4 & 6 & 2 & 4 & 5
 \end{array}
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{j)} \quad \begin{array}{r}
 \begin{array}{cccc}
 & \textcircled{4} & & \textcircled{3} \\
 & \textcircled{5} & & \textcircled{4} \\
 7 & 8 & 0 & 0 & 6 \\
 \times & & 6 & 7 \\
 \hline
 \textcircled{1} 5 & 4 & 6 & 0 & 4 & 2 \\
 + \textcircled{1} 4 & 6 & 8 & 0 & 3 & 6 & 0 \\
 \hline
 5 & 2 & 2 & 6 & 4 & 0 & 2
 \end{array}
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{k)} \quad \begin{array}{r}
 \begin{array}{cccc}
 & \textcircled{2} & \textcircled{1} & \textcircled{4} & \textcircled{1} \\
 & \textcircled{1} & & \textcircled{1} & \\
 6 & 4 & 1 & 6 & 2 \\
 \times & & 7 & 7 & 3 \\
 \hline
 \textcircled{1} 1 & 9 & \textcircled{1} 2 & \textcircled{1} 4 & 8 & 6 \\
 & \textcircled{1} 4 & 4 & 9 & 1 & 3 & 4 & 0 \\
 + 4 & 4 & 9 & 1 & 3 & 4 & 0 & 0 \\
 \hline
 4 & 9 & 5 & 9 & 7 & 2 & 2 & 6
 \end{array}
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{l)} \quad \begin{array}{r}
 \begin{array}{cccc}
 \textcircled{1} & \textcircled{1} & \textcircled{2} & \textcircled{2} \\
 \textcircled{2} & \textcircled{1} & \textcircled{3} & \textcircled{3} \\
 \textcircled{2} & \textcircled{1} & \textcircled{3} & \textcircled{3} \\
 5 & 3 & 2 & 5 & 5 \\
 \times & & 4 & 7 & 7 \\
 \hline
 \textcircled{1} 3 & 7 & \textcircled{1} 2 & \textcircled{1} 7 & 8 & 5 \\
 & \textcircled{1} 3 & 7 & 2 & 7 & 8 & 5 & 0 \\
 + 2 & 1 & 3 & 0 & 2 & 0 & 0 & 0 \\
 \hline
 2 & 5 & 4 & 0 & 2 & 6 & 3 & 5
 \end{array}
 \end{array}
 \end{array}$$

2. Multiply these.

a) 538×35

$$\begin{array}{r}
 \begin{array}{r}
 \begin{array}{cc}
 \textcircled{1} & \textcircled{2} \\
 \textcircled{1} & \textcircled{4} \\
 5 & 3 & 8 \\
 \times & 3 & 5 \\
 \hline
 2 \textcircled{1} 6 & 9 & 0 \\
 1 & 6 & 1 & 4 & 0 \\
 \hline
 1 & 8 & 8 & 3 & 0
 \end{array}
 \end{array}
 \end{array}$$

b) 845×175

$$\begin{array}{r}
 \begin{array}{r}
 \begin{array}{cc}
 \textcircled{3} & \textcircled{3} \\
 \textcircled{2} & \textcircled{2} \\
 8 & 4 & 5 \\
 \times & 1 & 7 & 5 \\
 \hline
 & 4 & 2 & 2 & 5 \\
 \textcircled{1} 5 & 9 & 1 & 5 & 0 \\
 & 8 & 4 & 5 & 0 & 0 \\
 \hline
 1 & 4 & 7 & 8 & 7 & 5
 \end{array}
 \end{array}
 \end{array}$$

c) 74542×21

$$\begin{array}{r}
 \begin{array}{r}
 \begin{array}{c} \textcircled{1} \\ 7 \end{array} 4 & 5 & 4 & 2 \\
 \times & & 2 & 1 \\
 \hline
 & 7 \textcircled{1} 4 & 5 & 4 & 2 \\
 \textcircled{1} 1 & 4 & 9 & 0 & 8 & 4 & 0 \\
 \hline
 1 & 5 & 6 & 5 & 3 & 8 & 2
 \end{array}
 \end{array}$$

d) 96483×864

$$\begin{array}{r}
 \begin{array}{r}
 \begin{array}{ccccccc}
 \textcircled{5} & \textcircled{3} & \textcircled{3} & \textcircled{2} & \textcircled{6} & \textcircled{4} & \textcircled{2} & \textcircled{1} \\
 & & & \textcircled{1} & & \textcircled{3} & & \\
 9 & 6 & 4 & 8 & 3 \\
 \times & 8 & 6 & 4 \\
 \hline
 \textcircled{2} 3 & \textcircled{2} 8 & \textcircled{2} 5 & \textcircled{1} 9 & 3 & 2 \\
 \textcircled{1} 5 & 7 & 8 & 8 & 9 & 8 & 0 \\
 \textcircled{1} 7 & 7 & 1 & 8 & 6 & 4 & 0 & 0 \\
 \hline
 8 & 3 & 3 & 6 & 1 & 3 & 1 & 2
 \end{array}
 \end{array}
 \end{array}$$

e) 95468×561

$$\begin{array}{r}
 \begin{array}{r}
 \begin{array}{cccc}
 \textcircled{2} & \textcircled{2} & \textcircled{3} & \textcircled{4} \\
 \textcircled{3} & \textcircled{2} & \textcircled{4} & \textcircled{4} \\
 9 & 5 & 4 & 6 & 8 \\
 \times & & 5 & 6 & 1 \\
 \hline
 \textcircled{1} 9 & 5 & 4 & 6 & 8 \\
 \textcircled{1} 5 \textcircled{1} 7 & 2 & 8 & 0 & 8 & 0 \\
 \textcircled{1} 4 & 7 & 7 & 3 & 4 & 0 & 0 & 0 \\
 \hline
 5 & 3 & 5 & 5 & 7 & 5 & 4 & 8
 \end{array}
 \end{array}
 \end{array}$$

f) 38943×103

$$\begin{array}{r}
 \begin{array}{r}
 \begin{array}{ccc}
 \textcircled{2} & \textcircled{2} & \textcircled{1} \\
 3 & 8 & 9 & 4 & 3 \\
 \times & & 1 & 0 & 3 \\
 \hline
 1 & 1 & 6 & 8 & 2 & 9 \\
 0 & 0 & 0 & 0 & 0 & 0 \\
 \textcircled{1} 3 & 8 & 9 & 4 & 3 & 0 & 0 \\
 \hline
 4 & 0 & 1 & 1 & 1 & 2 & 9
 \end{array}
 \end{array}
 \end{array}$$

3. There are 1024 megabytes in 1 gigabyte. How many megabytes are there in 475 gigabytes?

Solution:

Number of megabites in 1 gigabite = 1024

Number of megabites in 475 gigabytes = 1024×475
= 486400

So there are 486,400 megabites in 475 gigabites.

$$\begin{array}{r} 1024 \\ \times 475 \\ \hline 5120 \\ 71680 \\ + 409600 \\ \hline 486400 \end{array}$$

4. There are 166 paper clips in a box. How many paper clips will there be in 285 such boxes?

Solution:

Number of paper clips in a box = 166

Number of paper clips in 285 box = 166×285
= 47310

So there will be 47,310 paper clips in 285 boxes.

$$\begin{array}{r} 166 \\ \times 285 \\ \hline 830 \\ 13280 \\ + 33200 \\ \hline 47310 \end{array}$$

5. A motorbike costs Rs 72,000. How much will 132 such motorbikes cost?

Solution:

Cost of one motorbike = Rs 72,000

Cost of 132 motorbikes = $\text{Rs } 72,000 \times 132$
= 9504000

So, the cost of 132 motorbikes is Rs 9504000.

$$\begin{array}{r} 72000 \\ \times 132 \\ \hline 144000 \\ 2160000 \\ 7200000 \\ \hline 9504000 \end{array}$$

6. There are 35,326 oranges in a truck. If 107 such trucks are carrying an equal number of oranges, how many oranges are there altogether?

Solution:

Number of oranges in a truck = 35,326

Number of trucks = 107

Total number of oranges = $35,326 \times 107$
= 3779882

So, there are 3779882 oranges in 107 trucks altogether.

$$\begin{array}{r} 35,326 \\ \times 107 \\ \hline 247282 \\ 000000 \\ 3532600 \\ \hline 3779882 \end{array}$$

Learning Check 1.7

1. Divide and write the quotient and remainder (if any) of the following.

a) $14 \overline{) 253}$

Solution:

$$\begin{array}{r} 18 \\ 14 \overline{) 253} \\ \underline{-14} \\ 113 \\ \underline{-112} \\ 1 \end{array}$$

Quotient = 18

Remainder = 1

b) $5 \overline{) 946}$

Solution:

$$\begin{array}{r} 189 \\ 5 \overline{) 946} \\ \underline{-5} \\ 44 \\ \underline{-40} \\ 46 \\ \underline{-45} \\ 1 \end{array}$$

Quotient = 189

Remainder = 1

c) $2 \overline{) 396}$

Solution:

$$\begin{array}{r} 198 \\ 2 \overline{) 396} \\ \underline{-2} \\ 19 \\ \underline{-18} \\ 16 \\ \underline{-16} \\ 0 \end{array}$$

Quotient = 198

Remainder = 0

d) $19 \overline{) 861}$

Solution:

$$\begin{array}{r} 45 \\ 19 \overline{) 861} \\ \underline{-76} \\ 101 \\ \underline{-95} \\ 6 \end{array}$$

Quotient = 45

Remainder = 6

e) $49 \overline{) 275}$

Solution:

$$\begin{array}{r} 5 \\ 49 \overline{) 275} \\ \underline{-245} \\ 30 \end{array}$$

Quotient = 5

Remainder = 30

f) $86 \overline{) 613}$

Solution:

$$\begin{array}{r} 7 \\ 86 \overline{) 613} \\ \underline{-602} \\ 11 \end{array}$$

Quotient = 7

Remainder = 11

g) $46 \overline{) 9451}$

Solution:

$$\begin{array}{r} 205 \\ 46 \overline{) 9451} \\ \underline{-92} \\ 251 \\ \underline{-230} \\ 21 \end{array}$$

Quotient = 205

Remainder = 21

Note

If we drop down a number, and the resulting number is still smaller than the divisor, then we must write a "0" in the quotient before dropping down another number from the dividend

$$\text{h) } 85 \overline{) 394}$$

Solution:

$$\begin{array}{r} 4 \\ 85 \overline{) 394} \\ \underline{- 340} \\ 54 \end{array}$$

Quotient = 4

Remainder = 54

$$\text{i) } 50 \overline{) 7758}$$

Solution:

$$\begin{array}{r} 155 \\ 50 \overline{) 7758} \\ \underline{- 50} \quad \downarrow \\ 275 \quad \downarrow \\ \underline{- 250} \quad \downarrow \\ 258 \quad \downarrow \\ \underline{- 250} \\ 8 \end{array}$$

Quotient = 155

Remainder = 8

$$\text{j) } 40 \overline{) 9167}$$

Solution:

$$\begin{array}{r} 229 \\ 40 \overline{) 9167} \\ \underline{- 80} \quad \downarrow \\ 116 \quad \downarrow \\ \underline{- 80} \quad \downarrow \\ 367 \quad \downarrow \\ \underline{- 360} \\ 7 \end{array}$$

Quotient = 229

Remainder = 7

$$\text{k) } 94 \overline{) 7929}$$

Solution:

$$\begin{array}{r} 84 \\ 94 \overline{) 7929} \\ \underline{- 752} \quad \downarrow \\ 409 \quad \downarrow \\ \underline{- 376} \\ 33 \end{array}$$

Quotient = 84

Remainder = 33

$$\text{l) } 80 \overline{) 9473}$$

Solution:

$$\begin{array}{r} 118 \\ 80 \overline{) 9473} \\ \underline{- 80} \quad \downarrow \\ 147 \quad \downarrow \\ \underline{- 80} \quad \downarrow \\ 673 \quad \downarrow \\ \underline{- 640} \\ 33 \end{array}$$

Quotient = 118

Remainder = 33

2. Divide the following.

$$\text{a) } 486 \div 54$$

Solution:

$$\begin{array}{r} 9 \\ 54 \overline{) 486} \\ \underline{- 486} \\ 0 \end{array}$$

Quotient = 9

Remainder = 0

$$\text{b) } 256 \div 32$$

Solution:

$$\begin{array}{r} 8 \\ 32 \overline{) 256} \\ \underline{- 256} \\ 0 \end{array}$$

Quotient = 8

Remainder = 0

$$\text{c) } 3225 \div 43$$

Solution:

$$\begin{array}{r} 75 \\ 43 \overline{) 3225} \\ \underline{- 301} \quad \downarrow \\ 215 \quad \downarrow \\ \underline{- 215} \\ 0 \end{array}$$

Quotient = 75

Remainder = 0

d) $8236 \div 13$

Solution:

$$\begin{array}{r} 633 \\ 13 \overline{) 8236} \\ \underline{- 78} \\ 43 \\ \underline{- 39} \\ 46 \\ \underline{- 39} \\ 7 \end{array}$$

Quotient = 633

Remainder = 7

e) $1456 \div 21$

Solution:

$$\begin{array}{r} 69 \\ 21 \overline{) 1456} \\ \underline{- 126} \\ 196 \\ \underline{- 189} \\ 7 \end{array}$$

Quotient = 69

Remainder = 7

f) $234 \div 31$

Solution:

$$\begin{array}{r} 7 \\ 31 \overline{) 234} \\ \underline{- 217} \\ 17 \end{array}$$

Quotient = 7

Remainder = 11

3. Marwa is making gift boxes for needy children on Eid. She packed 525 assorted gift items equally in 35 boxes. How many items are there in each box?

Number of assorted gift items = 525

Number of boxes = 35

Number of items in each box = $525 \div 35$
= 15

$$\begin{array}{r} 15 \\ 35 \overline{) 525} \\ \underline{- 35} \\ 175 \\ \underline{- 175} \\ 0 \end{array}$$

So, there will be 15 items in each box.

4. The storage capacity of 55 external hard drives is 28,160 gigabytes. What is the capacity of one such external hard drive?

Number of external hard drives = 55

Total storage capacity = 28,160 gigabyte

Storage capacity of one hard drive = $28,160 \div 55$
= 512 gigabyte

So, the storage capacity of one such external hard drive is 512 gigabyte.

$$\begin{array}{r} 512 \\ 55 \overline{) 28160} \\ \underline{- 275} \\ 66 \\ \underline{- 55} \\ 110 \\ \underline{- 110} \\ 0 \end{array}$$

5. There are 2186 flowers in a flower shop. If 35 flowers are used to make one bouquet, find:

a) how many bouquets consisting of the same number of flowers can be made?

Number of flowers in flower shop = 2186

Number of flowers in one bouquet = 35

Number of bouquets that made = $2186 \div 35$
= 62 r 16

$$\begin{array}{r} 62 \\ 35 \overline{) 2186} \\ \underline{- 210} \\ 86 \\ \underline{- 70} \\ 16 \end{array}$$

So, 62 bouquets will be made consisting of the same number of flowers.

b) how many flowers will be left? 16 Flower will be left

6. 9565 mathematics textbooks were ordered for 23 schools in a city. Find:

a) how many books did each school purchase?

Total no. of books = 9565

Number of schools in the city = 23

Each school purchased = $9565 \div 23$
= 415 r 20

So, each school purchased 415 books.

b) how many books were left unpurchased?

20 books were left unpurchased.

$$\begin{array}{r} 415 \\ 23 \overline{) 9565} \\ \underline{- 92} \\ 36 \\ \underline{- 23} \\ 135 \\ \underline{- 115} \\ 20 \end{array}$$

Learning Check 1.8

1. A printer costs Rs 12,760 and a scanner costs Rs 8955. Find:

a) the total cost of both items.

Solution:

Cost of printer = Rs 12,760

Cost of scanner = + Rs 8,955

Total cost of both items = Rs 21,715

So, the total cost of both items is Rs 21,715.

b) how much more the printer costs than the scanner?

Solution:

$$\begin{array}{rcl} \text{Cost of printer} & = & \text{Rs } 12760 \\ \text{Cost of scanner} & = & - \text{Rs } 8955 \\ \hline \text{Difference} & = & \text{Rs } 3805 \end{array}$$

So, the printer cost Rs 3805 more than the scanner.

2. A baker baked 139 boxes of 46 cookies. If 3414 cookies were sold, find:

a) how many cookies were left?

Solution:

$$\begin{array}{rcl} \text{Number of boxes of cookies} & = & 139 \\ \text{Number of cookies in each box} & = & 46 \\ \text{Total no of cookies in 139 boxes} & = & 139 \times 46 \\ & = & 6394 \end{array}$$
$$\begin{array}{r} 139 \\ \times 56 \\ \hline 834 \\ + 5560 \\ \hline 6394 \end{array}$$

To find the number of cookies left we have to subtract sold cookies from total cookies.

$$\begin{array}{rcl} \text{Total cookies} & = & 6394 \\ \text{Cookies sold} & = & - 3414 \\ \hline \text{Cookies left} & = & 2980 \end{array}$$

So, 2980 cookies are left.

b) if the remaining cookies were put in 42 jars equally, how many cookies were there in each jar?

Solution:

$$\begin{array}{rcl} \text{Number of remaining cookies} & = & 2980 \\ \text{Number of jars} & = & 42 \\ \text{Cookies in each jar} & = & 2980 \div 42 \\ & = & 70 \text{ r } 40 \end{array}$$
$$\begin{array}{r} 70 \\ 42 \overline{) 2980} \\ \underline{-294} \\ 40 \end{array}$$

So, there will be 70 cookies in each jar and 40 cookies will be left.

3. There are 9724 Hadith books and 6320 language books in a library. Find:

a) how many books are there in the library?

Solution:

$$\text{Number of hadith books} = 9724$$

$$\text{Number of language books} = + 6320$$

$$\text{Number of books in the library} = \underline{16044}$$

So, there are 16044 books in the library.

b) how many more Hadith books are there than the language books?

Solution:

$$\text{Number of hadith books} = 9724$$

$$\text{Number of language books} = - 6320$$

$$\text{Difference} = \underline{3404}$$

So, there are 3404 more hadith books than language books.

c) if the total books are to be arranged in 22 racks, how many books will be in each rack and how many books will be left?

Solution:

$$\text{Total no of books} = 16044$$

$$\text{Number of racks} = 22$$

$$\text{Number of books in each rack} = 16044 \div 22$$

$$\text{Number of books left} = 729 \text{ r } 6$$

$$\begin{array}{r} 729 \\ 22 \overline{) 16044} \\ \underline{-154} \downarrow \\ 64 \downarrow \\ \underline{-44} \downarrow \\ 204 \downarrow \\ \underline{-198} \\ 6 \end{array}$$

So, there will be 729 books in each rack and 6 books will be left.

4. Mr Hassan has Rs 89,565 in his bank account and Rs 34,280 in cash.

Find:

a) how much more money is in his account than the cash he has?

Solution:

$$\text{Amount of money in bank account} = \text{Rs } 89565$$

$$\text{Amount of money in cash} = - \text{Rs } 34280$$

$$\text{Difference in both amounts} = \underline{\text{Rs } 55285}$$

So, there are Rs 55285 more in Mr Hassan's bank account than the cash he has.

b) the total amount of money Mr hassan has.

Solution:

Amount of money in bank account = Rs 8 9 5 6 5

Amount of money in cash = + Rs 3 4 2 8 0

Total amount of money = Rs.1 2 3 8 4 5

So, Mr Hassan has Rs 123,845 in total.

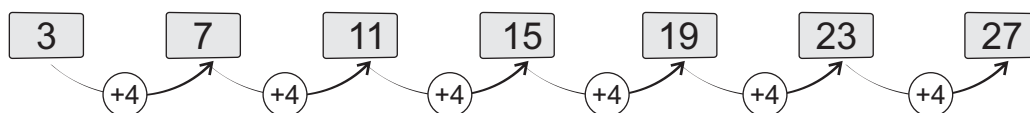
Learning Check 1.9

1. Identify the rules for the following patterns and write the next three terms.

a) 3, 7, 11, 15, _____, _____, _____

Solution:

Rule: add 4

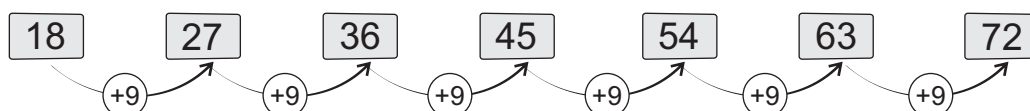


So, 3, 7, 11, 15, 19, 23, 27

b) 18, 27, 36, 45, _____, _____, _____

Solution:

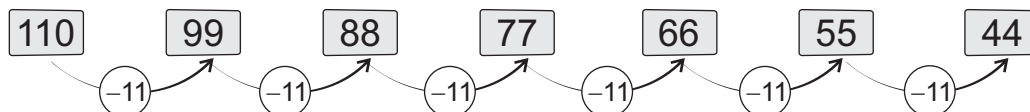
Rule: add 9



c) 110, 99, 88, 77, _____, _____, _____

Solution:

Rule: subtract 11

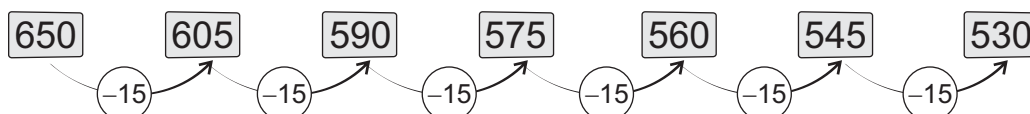


So, 110, 99, 88, 77, 66, 55, 44

d) 620, 605, 590, 575 _____, _____, _____

Solution:

Rule: subtract 15

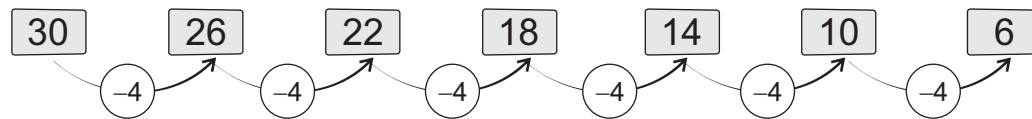


So, 650, 605, 590, 575, 560, 545, 530

e) 30, 26, 22, 18, _____, _____, _____

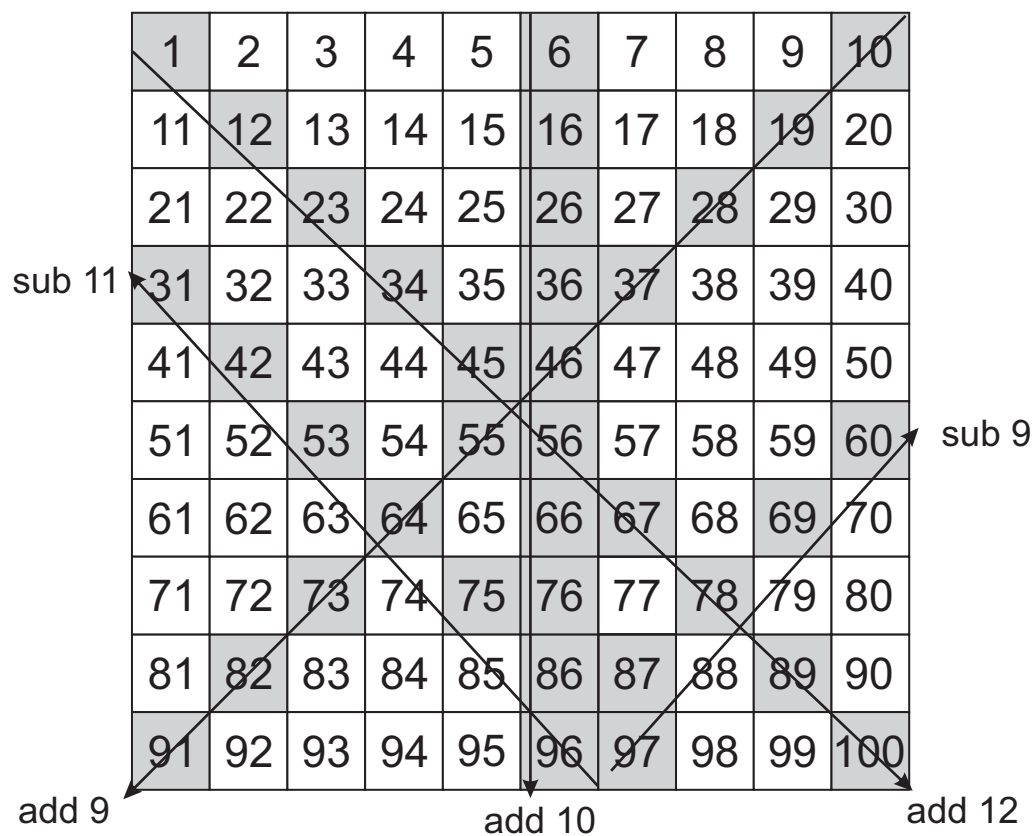
Solution:

Rule: subtract 4



So, 30, 26, 22, 18, 14, 10, 6

2. Look at the hundreds chart. Find, highlight and write the rule for at least 5 patterns of addition and subtraction found in it.



① 1 – 100 rule: add 12 ② 6 – 96: rule: add 10

③ 10 – 91 rule: add 9 ④ 96 – 60: rule: subtract 9

⑤ 97 – 31 : rule: subtract 11

3. Observe the following tables and write the rules for each pattern.

a) Rule: _____	
Number (In)	Result (Out)
100	70
60	30
55	25
40	10
33	3

we can see here that if we subtract 30 from every number, we get the corresponding result. So, the rule here is: subtract 30

Rule: subtract 30

b) Rule: _____	
Number (In)	Result (Out)
18	22
30	34
43	47
55	59
71	75

we can see that if we add 4 to each number, we get the corresponding result. so, the rule is add 4.

Rule: add 4

c) Rule: _____	
Number (In)	Result (Out)
4	14
8	18
33	43
100	110
650	660

we can see that if we add 10 to each number, we get the corresponding result. so, the rule is: add 10

Rule: add 10

d) Rule: _____	
Number (In)	Result (Out)
77	70
72	65
74	67
87	80
100	93

we can see that if we subtract 7 from each number, we get the result. so the rule here is: subtract 7

Rule: subtract 7

Unit Check 1.3

1. Encircle the correct options.

- a) (iv) 43701 (14, 567×3 , as tricycle has 3 wheels)
 b) (i) 140 r 5 c) (i) remainder d) (iii) add 4
 e) (iv) 189

2. Solve the following.

(a)

$$\begin{array}{r}
 8403 \\
 \times 527 \\
 \hline
 58821 \\
 168060 \\
 + 4201500 \\
 \hline
 4428381
 \end{array}$$

(b)

$$\begin{array}{r}
 1206 \\
 \times 674 \\
 \hline
 4824 \\
 84420 \\
 + 723600 \\
 \hline
 812844
 \end{array}$$

(c)

$$\begin{array}{r}
 46358 \\
 \times 565 \\
 \hline
 231790 \\
 2781480 \\
 + 23179000 \\
 \hline
 26192270
 \end{array}$$

(d)

$$\begin{array}{r}
 30863 \\
 \times 685 \\
 \hline
 154315 \\
 2469040 \\
 + 18517800 \\
 \hline
 21141155
 \end{array}$$

e

$$\begin{array}{r}
 244 \\
 39 \overline{) 9542} \\
 \underline{- 78} \\
 174 \\
 \underline{- 156} \\
 182 \\
 \underline{- 156} \\
 26
 \end{array}$$

quotient = 244
remainder = 26

f

$$\begin{array}{r}
 3 \\
 75 \overline{) 269} \\
 \underline{- 225} \\
 44
 \end{array}$$

quotient = 3
remainder = 44

g

$$\begin{array}{r}
 1 \\
 63 \overline{) 117} \\
 \underline{- 63} \\
 54
 \end{array}$$

quotient = 1
remainder = 54

h

$$\begin{array}{r}
 1 \\
 93 \overline{) 139} \\
 \underline{- 93} \\
 46
 \end{array}$$

quotient = 1
remainder = 46

3. There are 1563 boxes and each box has 132 chocolates. How many chocolates are there altogether?

Solution:

Number of boxes = 1563

Chocolates in each box = 132

Number of chocolates altogether = 1563×132
= 206316

$$\begin{array}{r}
 1563 \\
 \times 132 \\
 \hline
 3126 \\
 46890 \\
 + 156300 \\
 \hline
 206316
 \end{array}$$

So, there are 206,316 chocolates altogether.

4. Sumaira earns Rs 34,550 per month. Find the total money she will earn in 15 months.

Solution:

Sumaira earns in a month = Rs 34550

Number of months = 15

Sumaira will earn in 15 months = $\text{Rs } 34550 \times 15$
= Rs 518250

$$\begin{array}{r}
 34550 \\
 \times 15 \\
 \hline
 172750 \\
 + 345500 \\
 \hline
 518250
 \end{array}$$

So, Sumaira will earn Rs 518,250 in 15 months.

5. 5550 pencils are to be packed in 43 boxes equally. Find:

a) how many pencils will there be in each box?

Solution:

Number of pencils = 5 5 5 0

Number of boxes = 4 3

Number of pencils in each box = 5 5 5 0 ÷ 4 3

= 1 2 9 r 3

so, there will be 129 pencils in each box

$$\begin{array}{r} 129 \\ 43 \overline{) 5550} \\ \underline{-43} \\ 125 \\ \underline{-86} \\ 390 \\ \underline{-387} \\ 3 \end{array}$$

b) how many pencils will be left? Answer: 3 pencils will be left.

6. Fahad has collected 4567 stamps. His sister collected 2245 stamps.

Find:

a) how many more stamps did he collect than his sister?

Solution:

Fahad has collected stamps = 4 5 6 7

His sister collected stamps = 2 2 4 5

To know how many more stamps he collected than his sister. we have to find the difference between both. So, we subtract them.

$$\begin{array}{r} 4567 \\ -2245 \\ \hline 2322 \end{array}$$

So, Fahad collected 2322 more stamps than his sister.

b) how many stamps are there altogether?

Fahad has stamps = 4 5 6 7

His sister stamps = + 2 2 4 5

Stamps altogether = 6 8 1 2

So, there are 6812 stamps altogether.

7. The price of a washing machine is Rs 9250 and the price of a microwave oven is Rs 6230. Find the price of 35 washing machines and 18 microwave ovens.

Solution:

The price of one washing machine = Rs. 9250

The price of 35 washing machines = Rs 9250×35
 = Rs 323750

$$\begin{array}{r} 9250 \\ \times 35 \\ \hline 46250 \\ + 277500 \\ \hline 323750 \end{array}$$

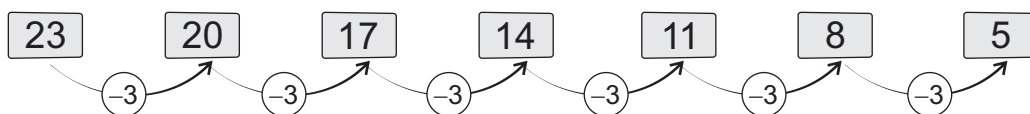
So, the price of 35 washing machines is Rs 323,750.

8. Identify the rules for the following patterns and write the next three terms for each.

a) 23, 20, 17, 14, _____, _____, _____.

Solution:

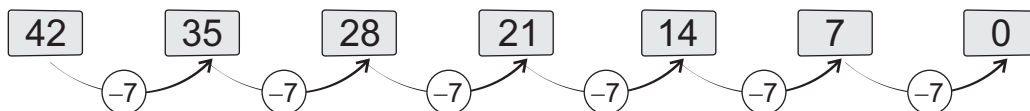
the rule here is: subtract 3



so, 23, 20, 17, 14, 11, 8, 5

b) 42, 35, 28, 21, _____, _____, _____.

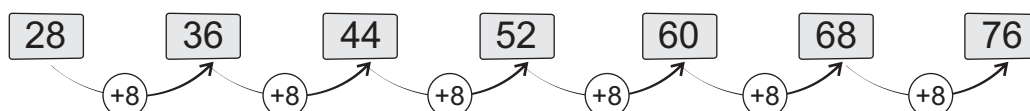
the rule here is: subtract 7



so, 42, 35, 28, 21, 14, 7, 0

c) 28, 36, 44, 52, _____, _____, _____.

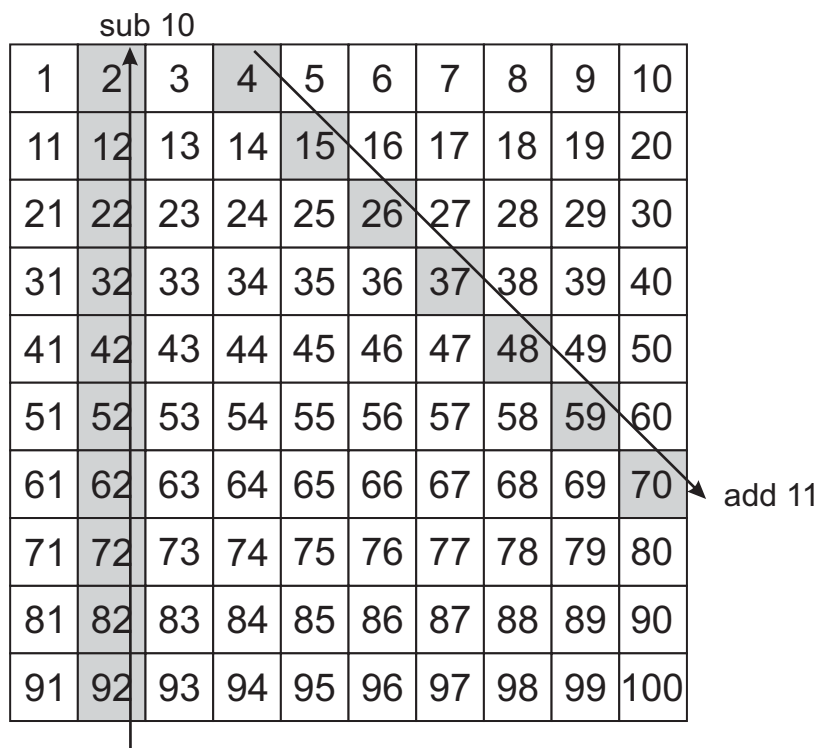
the rule here is: add 8



so, 28, 36, 44, 52, 60, 68, 76

9. Look at the hundreds chart. Find, highlight and write the rule for at least 2 patterns of addition and subtraction each.

Solution:



① 4 – 70 rule: add 11 , ② 92 – 2: rule: subtract 10

10. Observe the following tables and find the rule for each pattern.

a) Rule: _____	
Number (In)	Result (Out)
15	12
18	15
21	18
33	30
70	67

Rule: subtract 3

We can see here that if we subtract 3 from each number we get the corresponding result. So, the rule there is subtract 3.

b) Rule: _____	
Number (In)	Result (Out)
4	16
7	19
15	27
20	32
72	84

Rule: add 12

We can see here that if we add 12 to each number, we get the corresponding result. So the rule here is, add 12.

Unit 2: Factors and Multiples

Learning Check 2.1

1. Write five numbers which are divisible by both 2 and 5.

Answer: 10, 20, 30, 40, 50

2. Write four 5-digit numbers which are divisible by both 5 and 10.

Answer: 10,000 10,020 12,000 14,440

3. Write five numbers which are divisible by 2, 5 and 10.

Answer: 10, 20, 30, 60, 80

4. Circle the numbers which are divisible by 3.

☒45 ☒48 ☒81 ☒27 ☒63 89 65
 23 71 ☒54 76 ☒54 ☒39

5. Circle the numbers which are divisible by 10.

☒10 15 67 ☒40 ☒90 39
 51 73 32 56 ☒20 ☒60

6. Match the numbers to the correct label.

a) Divisible by 2: 1250, 85454, 65652, 34520, 10086, 84840, 246, 71412, 59210.

b) Divisible by 3: 309, 12123, 65652, 10086, 84840, 246, 71412.

c) Divisible by 5: 1250, 565, 49555, 34520, 84840, 59210.

d) Divisible by 10: 1250, 34520, 84840, 59210.

7. Use the divisibility rules and tick (✓) the correct boxes.

Numbers	Divisible by 2	Divisible by 3	Divisible by 5	Divisible by 10
a) 345		✓	✓	
b) 15430	✓		✓	✓
c) 67653		✓		
d) 48905			✓	
e) 16545		✓	✓	
f) 34770	✓	✓	✓	✓

Learning Check 2.2

1. Circle all the prime numbers.

③	6	10	②	14
⑪	21	⑤	22	②③
30	⑤③	54	④①	60
50	28	52	42	④⑦
	46	②⑨		

2. Is 11 a prime number? Why or why not?

Answer: 11 is a prime number, because 11 has only two divisors, 1 and 11 itself

3. Is 8 a composite number? Why or why not?

Answer: 8 is a composite number, as it has more than two divisors, 1, 2, 4 and 8 itself.

4. Write all the composite numbers between 7 and 20.

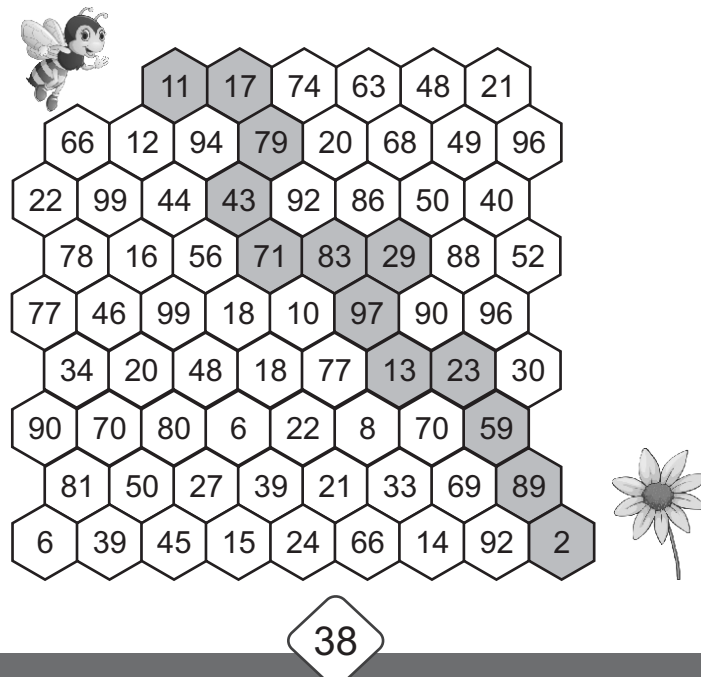
Answer: 8, 9, 10, 12, 14, 15, 16, 18.

5. Write all the prime numbers between 1 and 20.

Answer: 2, 3, 5, 7, 11, 13, 17, 19.

6. Help the bee to reach the flower by colouring all the prime numbers.

Answer:



Learning Check 2.3

1. Find all the factors of the following numbers.

- a) 18 Answer: Factors of 18 = 1, 2, 3, 6, 9, 18
- b) 45 Answer: Factors of 45 = 1, 3, 5, 9, 15, 45
- c) 50 Answer: Factors of 50 = 1, 2, 5, 10, 25, 50
- d) 28 Answer: Factors of 28 = 1, 2, 4, 7, 14, 28
- e) 48 Answer: Factors of 48 = 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
- f) 32 Answer: Factors of 32 = 1, 2, 4, 8, 16, 32

2. Find the first 10 multiples of the following numbers.

- a) 3 Answer: First 10 multiples of 3 = 3, 6, 9, 12, 15, 18, 21, 24, 27, 30.
- b) 6 Answer: First 10 multiples of 6 = 6, 12, 18, 24, 30, 36, 42, 48, 54, 60.
- c) 7 Answer: First 10 multiples of 7 = 7, 14, 21, 28, 35, 42, 49, 56, 63, 70.
- d) 8 Answer: First 10 multiples of 8 = 8, 16, 24, 32, 40, 48, 56, 64, 72, 80.
- e) 9 Answer: First 10 multiples of 9 = 9, 18, 27, 36, 45, 54, 63, 72, 81, 90.
- f) 5 Answer: First 10 multiples of 5 = 5, 10, 15, 20, 25, 30, 35, 40, 45, 50.

3. Circle the numbers inside the box which are factors of the number outside the box.

16

8, 13, 1, 15,
4, 48, 2, 32

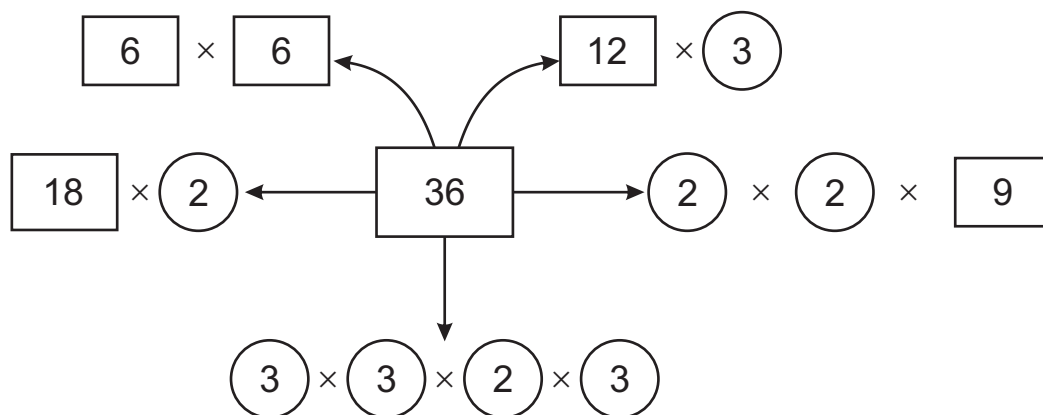
22

2, 10, 11, 15,
6, 44, 3, 22

48

2, 4, 5, 6, 7, 8
12, 3, 21, 24, 6, 11

4. Fill in the circles with prime numbers and the squares with composite numbers to get 36 as the product.



Learning Check 2.4

1. Find all the factors of the following numbers.

a) 12

Let's factorize the number 12.

Step I: Divide 12 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $12 = 2 \times 2 \times 3$

So, the prime factors of 12 are 2, 2 and 3.

2	12
2	6
3	3
	1

b) 18

Let's factorize the number 18.

Step I: Divide 18 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $18 = 2 \times 3 \times 3$

So, the prime factors of 18 are 2, 3 and 3.

2	18
3	9
3	3
	1

c) 10

Let's factorize the number 10.

Step I: Divide 10 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $10 = 2 \times 5$

So, the prime factors of 10 are 2 and 5.

2	10
5	5
	1

d) 45

Let's factorize the number 45.

Step I: Divide 45 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $45 = 3 \times 3 \times 5$

So, the prime factors of 45 are 3, 3 and 5.

3	45
3	15
5	5
	1

e) 36

Let's factorize the number 36.

Step I: Divide 36 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $36 = 2 \times 2 \times 3 \times 3$

So, the prime factors of 36 are 2, 2, 3 and 3.

2	36
2	18
3	9
3	3
	1

f) 48

Let's factorize the number 48.

Step I: Divide 48 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $48 = 2 \times 2 \times 2 \times 2 \times 3$

So, the prime factors of 48 are 2, 2, 3 and 3.

2	48
2	24
2	12
2	6
3	3
	1

g) 50

Let's factorize the number 50.

Step I: Divide 50 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $50 = 2 \times 5 \times 5$

So, the prime factors of 50 are 2, 5 and 5.

2	50
5	25
5	5
	1

h) 30

Let's factorize the number 30.

Step I: Divide 30 by its prime factor.

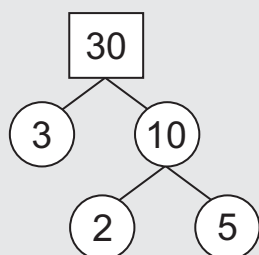
Step II: Repeat the process till the division ends.

Prime factorization of $30 = 2 \times 3 \times 5$

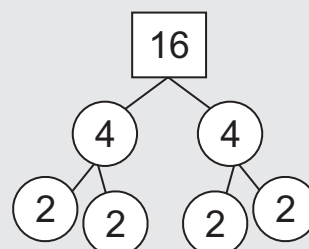
So, the prime factors of 30 are 2, 3 and 5.

2	30
3	15
5	5
	1

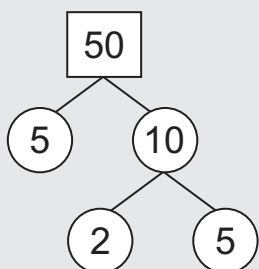
2. Fill in the circles and write the prime factors and the prime factorization of the following numbers.



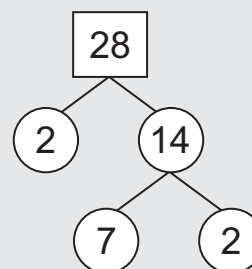
Prime factorization of $30 = 2 \times 3 \times 5$
Prime factors of 30 are: 2, 3, 5



Prime factorization of $16 = 2 \times 2 \times 2 \times 2$
Prime factors of 16 are: 2, 2, 2, 2



Prime factorization of $50 = 2 \times 5 \times 5$
Prime factors of 50 are: 2, 5, 5



Prime factorization of $28 = 2 \times 2 \times 7$
Prime factors of 28 are: 2, 2, 7

Learning Check 2.5

1. Find the common factors of the following numbers.

a) 6 and 8

Solution:

Factors of 6 = ①, ②, 3, 6

Factors of 8 = ①, ②, 4, 8

Common factors of 6 and 8 = 1 and 2.

b) 12, 14 and 16

Solution:

Factors of 12 = ①, ②, 3, 4, 6, 12

Factors of 14 = ①, ②, 7, 14

Factors of 16 = ①, ②, 4, 8, 16

Common factors of 12, 14 and 16 = 1 and 2.

c) 15 and 25

Solution:

Factors of 15 = ①, 3, ⑤, 15

Factors of 25 = ①, ⑤, 25

Common factors of 15 and 25 = 1 and 5.

d) 45 and 48

Solution:

Factors of 45 = ①, ③, 5, 9, 15, 45

Factors of 48 = ①, 2, ③, 4, 6, 8, 12, 24, 48

Common factors of 45 and 48 = 1 and 3.

e) 16, 14 and 20

Solution:

Factors of 16 = ①, ②, 4, 8, 16

Factors of 14 = ①, ②, 7, 14

Factors of 20 = ①, ②, 4,

Common factors of 16, 14 and 20 = 1 and 2.

f) 56 and 90

Solution:

Factors of 56 = $\textcircled{1}$, $\textcircled{2}$, 4, 7, 8, 14, 28, 56

Factors of 90 = $\textcircled{1}$, $\textcircled{2}$, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90

Common factors of 56 and 90 = 1 and 2.

2. Find the first two common multiples of the following numbers.

a) 13, 26

Solution:

Multiples of 13 = 13, $\textcircled{26}$, 39, $\textcircled{52}$, 62, ...

Multiples of 26 = $\textcircled{26}$, $\textcircled{52}$, 78, 104, 130, ...

So, the first two common multiples of 13 and 26 are 26 and 52.

b) 16, 32

Solution:

Multiples of 16 = 16, $\textcircled{32}$, 48, $\textcircled{64}$, 80, ...

Multiples of 32 = $\textcircled{32}$, $\textcircled{64}$, 96, 128, 160, ...

So, the first two common multiples of 16 and 26 are 32 and 64.

c) 36, 24

Solution:

Multiples of 36 = $\textcircled{72}$, 108, $\textcircled{144}$, 180, 216, 252, 288, ...

Multiples of 24 = 24, 48, $\textcircled{72}$, 96, 120, $\textcircled{144}$, 168, ...

So, the first two common multiples of 36 and 24 are 72 and 144.

d) 15, 45

Solution:

Multiples of 15 = 15, 30, $\textcircled{45}$, 60, $\textcircled{90}$, ...

Multiples of 45 = $\textcircled{45}$, $\textcircled{90}$, 135, 180, 225,

So, the first two common multiples of 15 and 45 are 45 and 90.

e) 9, 18, 27

Solution:

Multiples of 9 = 9, 18, 27, 36, 45, $\textcircled{54}$, 63, 72, 81, 90, 99, $\textcircled{108}$, ...

Multiples of 18 = 18, 36, $\textcircled{54}$, 72, 90, $\textcircled{108}$, 126, ...

Multiples of 27 = 27, $\textcircled{54}$, 81, $\textcircled{108}$, 135, 162, ...

So, the first two common multiples of 9, 18 and 27 are 54 and 108.

f) 12, 14, 28

Solution:

Multiples of 12 = 12, 24, 36, 48, 60, 72, (84), 96, 108, 120, 132, 144, 156, (168), 180, ...

Multiples of 14 = 14, 28, 42, 56, 70, (84), 98, 112, 126, 140, 154, (168), ...

Multiples of 28 = 28, 56, (84), 112, 140, (168), 196, ...

So, the first two common multiples of 12, 14 and 28 are 84 and 108.

Unit Check 2

1. Encircle the correct options.

a) (iii) composite b) (ii) 3 and 5 c) (iv) 1 d) (ii) 1 e) (iii) 45

2. Use the divisibility rules and tick (✓) the correct boxes.

Numbers	Divisible by 2	Divisible by 3	Divisible by 5	Divisible by 10
a) 235			✓	
b) 198	✓	✓		
c) 630	✓	✓	✓	✓
d) 5682	✓	✓		
e) 895			✓	

3. Write all the prime numbers between 22 and 52.

Answer: 23, 29, 31, 37, 41, 43, 47.

4. Write all the composite numbers between 41 and 79.

Answer: 42, 44, 45, 46, 48, 49, 50, 51, 52, 54, 55, 56, 57, 58, 60, 62, 63, 64, 65, 66, 68, 69, 70, 72, 74, 75, 76, 77, 78.

5. Find the factors of the following.

a) 24

Let's factorize the number 24.

Step I: Divide 24 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of 24 = $2 \times 2 \times 2 \times 3$

So, the prime factors of 24 are 2, 2, 2 and 3.

b) 12

Let's factorize the number 12.

Step I: Divide 12 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of 12 = $2 \times 2 \times 3$

So, the prime factors of 12 are 2, 2 and 3.

2	24
2	12
2	6
3	3
	1

2	12
2	6
3	3
	1

c) 15

Let's factorize the number 15.

Step I: Divide 15 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $15 = 3 \times 5$

So, the prime factors of 15 are 3 and 5.

3	15
5	5
	1

d) 9

Let's factorize the number 9.

Step I: Divide 9 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $9 = 3 \times 3$

So, the prime factors of 9 are 3 and 3.

3	9
3	3
	1

e) 25

Let's factorize the number 25.

Step I: Divide 25 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $25 = 5 \times 5$

So, the prime factors of 25 are 5 and 5.

5	25
5	5
	1

f) 30

Let's factorize the number 30.

Step I: Divide 30 by its prime factor.

Step II: Repeat the process till the division ends.

Prime factorization of $30 = 2 \times 3 \times 5$

So, the prime factors of 30 are 2, 3 and 5.

2	30
3	15
5	5
	1

6. Find the first 10 multiples of the following.

a) 2 Answer: First 10 multiples of 2 = 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

b) 5 Answer: First 10 multiples of 5 = 5, 10, 15, 20, 25, 30, 35, 40, 45, 50.

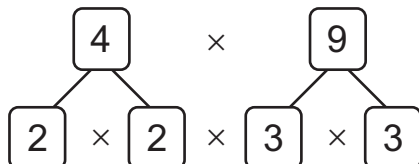
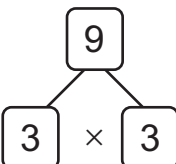
c) 7 Answer: First 10 multiples of 7 = 7, 14, 21, 28, 35, 42, 49, 56, 63, 70.

d) 9 Answer: First 10 multiples of 9 = 9, 18, 27, 36, 45, 54, 63, 72, 81, 90.

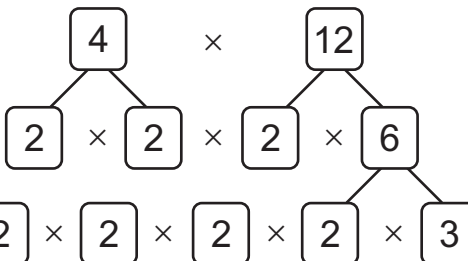
e) 4 Answer: First 10 multiples of 4 = 4, 8, 12, 16, 20, 24, 28, 32, 36, 40.

f) 6 Answer: First 10 multiples of 6 = 6, 12, 18, 24, 30, 36, 42, 48, 54, 60.

7. Find all the prime factors of the following numbers.

a) $36 =$  $\times$ 

So, all prime factors of 36 are 2, 2, 3, 3.

b) $48 =$ 

So, all prime factors of 48 are 2, 2, 2, 2, 3.

8. Find all the common factors of the numbers given.

a) 20, 40

Solution:

Factors of 20 = (1), (2), (4), (5), (10), (20)

Factors of 40 = (1), (2), (4), (5), 8, (10), (20), 40

Common factors of 20 and 40 = 1, 2, 4, 5, 10, 20.

b) 28, 36

Solution:

Factors of 28 = (1), (2), (4), 7, 14, 28

Factors of 36 = (1), (2), 3, (4), 6, 9, 12, 18, 36

Common factors of 28 and 36 = 1, 2, 4.

c) 16, 26, 46

Solution:

Factors of 16 = (1), (2), 4, 8, 16

Factors of 26 = (1), (2), 13, 26

Factors of 46 = (1), (2), 23, 46

Common factors of 16, 26 and 46 = 1 and 2.

d) 10, 20, 30

Solution:

Factors of 10 = (1), (2), (5), 10

Factors of 20 = (1), (2), 4, (5), 10, 20

Factors of 30 = (1), (2), 3, (5), 6, 10, 15

Common factors of 10, 20 and 30 = 1, 2 and 5.

9. Find the first 2 common multiples of the numbers given.

a) 17, 34

Solution:

Multiples of 17 = 17, $\textcircled{34}$, 51, $\textcircled{68}$, 85, 102, 119, 136, ...

Multiples of 34 = $\textcircled{34}$, $\textcircled{68}$, 102, 136, 170, ...

So, the first two common multiples of 17 and 34 are 34 and 68.

b) 25, 30

Solution:

Multiples of 25 = 25, 50, 75, 100, 125, $\textcircled{150}$, 175, 200, 225, 250, 275, $\textcircled{300}$, ...

Multiples of 30 = 30, 60, 90, 120, $\textcircled{150}$, 180, 210, 240, 270, $\textcircled{300}$, ...

So, the first two common multiples of 25 and 30 are 150 and 300.

c) 12, 16, 24

Solution:

Multiples of 12 = 12, 24, 36, $\textcircled{48}$, 60, 72, 84, $\textcircled{96}$, 108, ...

Multiples of 16 = 16, 32, $\textcircled{48}$, 64, 80, $\textcircled{96}$, 112, 128, 144, ...

Multiples of 24 = 24, $\textcircled{48}$, 72, $\textcircled{96}$, 120, 144, 168, ...

So, the first two common multiples of 12, 16 and 24 are 48 and 96.

d) 10, 15, 20, 30

Solution:

Multiples of 10 = 10, 20, 30, 40, 50, $\textcircled{60}$, 70, 80, 90, 100, 110, $\textcircled{120}$, 130, ...

Multiples of 15 = 15, 30, 45, $\textcircled{60}$, 75, 90, 105, $\textcircled{120}$, 135, 150, ...

Multiples of 20 = 20, 40, $\textcircled{60}$, 80, 100, $\textcircled{120}$, 140, 160, 180, ...

Multiples of 30 = 30, $\textcircled{60}$, 90, $\textcircled{120}$, 150, 180, 210, 240, 270, 300, ...

So, the first two common multiples of 10, 15, 20 and 30 are 60 and 120.

Unit 3: Fractions

Learning Check 3.1

Tick (✓) the like fractions and circle the unlike fractions.

a) $\frac{3}{6}, \frac{1}{6}$ ✓

b) $\left(\frac{5}{11}, \frac{2}{13}\right)$

c) $\frac{5}{8}, \frac{7}{8}$ ✓

d) $\left(\frac{9}{10}, \frac{4}{7}\right)$

e) $\left(\frac{1}{2}, \frac{1}{4}\right)$

f) $\frac{5}{8}, \frac{3}{8}$ ✓

g) $\left(\frac{11}{12}, \frac{5}{11}\right)$

h) $\frac{4}{6}, \frac{7}{6}$ ✓

Learning Check 3.2

1. Compare the fractions and write < or >.

a) $\frac{1}{6} \square \frac{3}{4}$

Solution:

$$\frac{1}{6} = \frac{1 \times 2}{6 \times 2} = \frac{2}{12}$$

$$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$$

$$\text{as } \frac{2}{12} \square \frac{9}{12} \text{ so, } \frac{1}{6} \square \frac{3}{4}$$

b) $\frac{5}{12} \square \frac{2}{3}$

Solution:

$$\frac{5}{12} = \frac{5 \times 1}{12 \times 1} = \frac{5}{12}$$

$$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$

$$\text{as } \frac{5}{12} \square \frac{8}{12} \text{ so, } \frac{5}{12} \square \frac{2}{3}$$

c) $\frac{3}{5} \square \frac{1}{2}$

Solution:

$$\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$$

$$\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10}$$

$$\text{as } \frac{6}{10} \square \frac{5}{10} \text{ so, } \frac{3}{5} \square \frac{1}{2}$$

d) $\frac{1}{2} \square \frac{2}{3}$

Solution:

$$\frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}$$

$$\frac{2}{3} = \frac{2 \times 2}{3 \times 2} = \frac{4}{6}$$

$$\text{as } \frac{3}{6} \square \frac{4}{6} \text{ so, } \frac{1}{2} \square \frac{2}{3}$$

$$e) \frac{7}{9} \square \frac{3}{8}$$

Solution:

$$\frac{7}{9} = \frac{7 \times 8}{9 \times 8} = \frac{56}{72}$$

$$\frac{3}{8} = \frac{3 \times 9}{8 \times 9} = \frac{27}{72}$$

$$\text{as } \frac{56}{72} \square \frac{27}{72} \text{ so, } \frac{7}{9} \square \frac{3}{8}$$

$$f) \frac{4}{7} \square \frac{1}{9}$$

Solution:

$$\frac{4}{7} = \frac{4 \times 9}{7 \times 9} = \frac{36}{63}$$

$$\frac{1}{9} = \frac{1 \times 7}{9 \times 7} = \frac{7}{63}$$

$$\text{as } \frac{36}{63} \square \frac{7}{63} \text{ so, } \frac{4}{7} \square \frac{1}{9}$$

$$g) \frac{5}{6} \square \frac{7}{8}$$

Solution:

$$\frac{5}{6} = \frac{5 \times 4}{6 \times 4} = \frac{20}{24}$$

$$\frac{7}{8} = \frac{7 \times 3}{8 \times 3} = \frac{21}{24}$$

$$\text{as } \frac{20}{24} \square \frac{21}{24} \text{ so, } \frac{5}{6} \square \frac{7}{8}$$

$$h) \frac{3}{7} \square \frac{2}{3}$$

Solution:

$$\frac{3}{7} = \frac{3 \times 3}{7 \times 3} = \frac{9}{21}$$

$$\frac{2}{3} = \frac{2 \times 7}{3 \times 7} = \frac{14}{21}$$

$$\text{as } \frac{9}{21} \square \frac{14}{21} \text{ so, } \frac{3}{7} \square \frac{2}{3}$$

2. Arrange the fractions in ascending and descending order.

$$a) \frac{3}{5}, \frac{1}{4}, \frac{4}{5}$$

Solution:

To arrange the fractions in ascending or descending order, first we convert them into like fractions.

$$\frac{3}{5} = \frac{3 \times 4}{5 \times 4} = \frac{12}{20}, \quad \frac{1}{4} = \frac{1 \times 5}{4 \times 5} = \frac{5}{20}, \quad \frac{4}{5} = \frac{4 \times 4}{5 \times 4} = \frac{16}{20}$$

$$\text{as } \frac{5}{20} < \frac{12}{20} < \frac{16}{20} \quad \text{or} \quad \frac{1}{4} < \frac{3}{5} < \frac{4}{5}$$

$$\text{So, Ascending order} = \frac{1}{4}, \frac{3}{5}, \frac{4}{5} \quad \text{Descending order} = \frac{4}{5}, \frac{3}{5}, \frac{1}{4}$$

$$b) \frac{3}{5}, \frac{7}{8}, \frac{1}{2}$$

Solution:

To arrange the fractions in ascending or descending order, first we convert them into like fractions.

$$\frac{3}{5} = \frac{3 \times 24}{5 \times 24} = \frac{72}{120}, \quad \frac{7}{8} = \frac{7 \times 15}{8 \times 15} = \frac{105}{120}, \quad \frac{1}{2} = \frac{1 \times 60}{2 \times 60} = \frac{60}{120}$$

$$\text{as } \frac{60}{120} < \frac{72}{120} < \frac{105}{120} \quad \text{or} \quad \frac{1}{2} < \frac{3}{5} < \frac{7}{8}$$

$$\text{So, Ascending order} = \frac{1}{2}, \frac{3}{5}, \frac{7}{8} \quad \text{Descending order} = \frac{7}{8}, \frac{3}{5}, \frac{1}{2}$$

$$\text{c) } \frac{1}{3}, \frac{5}{8}, \frac{1}{5}$$

Solution:

To arrange the fractions in ascending or descending order, first we convert them into like fractions.

$$\frac{1}{3} = \frac{1 \times 40}{3 \times 40} = \frac{40}{120}, \quad \frac{5}{8} = \frac{5 \times 15}{8 \times 15} = \frac{75}{120}, \quad \frac{1}{5} = \frac{1 \times 24}{5 \times 24} = \frac{24}{120}$$

$$\text{as } \frac{24}{120} < \frac{40}{120} < \frac{75}{120} \quad \text{or} \quad \frac{1}{5} < \frac{1}{3} < \frac{5}{8}$$

$$\text{So, Ascending order} = \frac{1}{5}, \frac{1}{3}, \frac{5}{8} \quad \text{Descending order} = \frac{5}{8}, \frac{1}{3}, \frac{1}{5}$$

$$\text{d) } \frac{3}{10}, \frac{5}{8}, \frac{2}{5}$$

Solution:

To arrange the fractions in ascending or descending order, first we convert them into like fractions.

$$\frac{3}{10} = \frac{3 \times 4}{10 \times 4} = \frac{12}{40}, \quad \frac{5}{8} = \frac{5 \times 5}{8 \times 5} = \frac{25}{40}, \quad \frac{2}{5} = \frac{2 \times 8}{5 \times 8} = \frac{16}{40}$$

$$\text{as } \frac{12}{40} < \frac{16}{40} < \frac{25}{40} \quad \text{or} \quad \frac{3}{10} < \frac{2}{5} < \frac{5}{8}$$

$$\text{So, Ascending order} = \frac{3}{10}, \frac{2}{5}, \frac{5}{8} \quad \text{Descending order} = \frac{5}{8}, \frac{2}{5}, \frac{3}{10}$$

$$\text{e) } \frac{2}{5}, \frac{3}{4}, \frac{1}{2}$$

Solution:

To arrange the fractions in ascending or descending order, first we convert them into like fractions.

$$\frac{2}{5} = \frac{2 \times 4}{5 \times 4} = \frac{8}{20}, \quad \frac{3}{4} = \frac{3 \times 5}{4 \times 5} = \frac{15}{20}, \quad \frac{1}{2} = \frac{1 \times 10}{2 \times 10} = \frac{10}{20}$$

$$\text{as } \frac{8}{20} < \frac{10}{20} < \frac{15}{20} \quad \text{or} \quad \frac{2}{5} < \frac{1}{2} < \frac{3}{4}$$

$$\text{So, Ascending order} = \frac{2}{5}, \frac{1}{2}, \frac{3}{4} \quad \text{Descending order} = \frac{3}{4}, \frac{1}{2}, \frac{2}{5}$$

f) $\frac{5}{6}, \frac{3}{8}, \frac{1}{4}$

Solution:

To arrange the fractions in ascending or descending order, first we convert them into like fractions.

$$\frac{5}{6} = \frac{5 \times 4}{6 \times 4} = \frac{20}{24}, \quad \frac{3}{8} = \frac{3 \times 3}{8 \times 3} = \frac{9}{24}, \quad \frac{1}{4} = \frac{1 \times 6}{4 \times 6} = \frac{6}{24}$$

$$\text{as } \frac{6}{24} < \frac{9}{24} < \frac{20}{24} \quad \text{or} \quad \frac{1}{4} < \frac{3}{8} < \frac{5}{6}$$

$$\text{So, Ascending order} = \frac{1}{4}, \frac{3}{8}, \frac{5}{6} \quad \text{Descending order} = \frac{5}{6}, \frac{3}{8}, \frac{1}{4}$$

Learning Check 3.3

Simplify the following fractions.

a) $\frac{3}{6} = \frac{\square}{\square}$

Solution:

The common factor of 3 and 6 = 3, so

$$\frac{3 \div 3}{6 \div 3} = \frac{1}{2} \quad \text{Answer}$$

b) $\frac{35}{40} = \frac{\square}{\square}$

Solution:

The common factor of 35 and 40 is 5, so $\frac{35}{40} = \frac{35 \div 5}{40 \div 5} = \frac{7}{8}$ Answer

c) $\frac{10}{16} = \frac{\square}{\square}$

Solution:

The common factor of 10 and 16 is 2, so $\frac{10}{16} = \frac{10 \div 2}{16 \div 2} = \frac{5}{8}$ Answer

d) $\frac{8}{36} = \frac{\square}{\square}$

Solution:

The common factor of 8 and 36 is 4, so $\frac{8}{36} = \frac{8 \div 4}{36 \div 4} = \frac{2}{9}$ Answer

Note: To simplify fractions, we find the common factor of the numerator and denominator of given fraction and then divide the numerator and denominator by their common factor.

$$e) \frac{18}{20} = \frac{\square}{\square}$$

Solution:

Th common factor of 18 and 20 is 2, so $\frac{18}{20} = \frac{18 \div 2}{20 \div 2} = \frac{9}{10}$ Answer

$$f) \frac{42}{36} = \frac{\square}{\square}$$

Solution:

Th common factor of 42 and 36 is 6, so $\frac{42}{36} = \frac{42 \div 6}{36 \div 6} = \frac{7}{6}$ Answer

$$g) \frac{6}{9} = \frac{\square}{\square}$$

Solution:

Th common factor of 6 and 9 is 3, so $\frac{6}{9} = \frac{6 \div 3}{9 \div 3} = \frac{2}{3}$ Answer

$$h) \frac{28}{10} = \frac{\square}{\square}$$

Solution:

Th common factor of 28 and 10 is 2, so $\frac{28}{10} = \frac{28 \div 2}{10 \div 2} = \frac{14}{5}$ Answer

$$i) \frac{63}{30} = \frac{\square}{\square}$$

Solution:

Th common factor of 63 and 30 is 3, so $\frac{63}{30} = \frac{63 \div 3}{30 \div 3} = \frac{21}{10}$ Answer

$$j) \frac{44}{48} = \frac{\square}{\square}$$

Solution:

Th common factor of 44 and 48 is 4, so $\frac{44}{48} = \frac{44 \div 4}{48 \div 4} = \frac{11}{12}$ Answer

$$k) \frac{55}{15} = \frac{\square}{\square}$$

Solution:

Th common factor of 55 and 15 is 5, so $\frac{55}{15} = \frac{55 \div 5}{15 \div 5} = \frac{11}{3}$ Answer

$$l) \frac{10}{35} = \frac{\square}{\square}$$

Solution:

Th common factor of 10 and 35 is 5, so $\frac{10}{35} = \frac{10 \div 5}{35 \div 5} = \frac{2}{7}$ Answer

Learning Check 3.4

1. Circle the unit fractions.

a) $\left(\frac{1}{10}\right)$

b) $\frac{2}{5}$

c) $\frac{6}{4}$

d) $\left(\frac{1}{3}\right)$

e) $\left(\frac{1}{5}\right)$

f) $\frac{7}{2}$

g) $\left(\frac{1}{9}\right)$

h) $\frac{8}{5}$

i) $\left(\frac{1}{2}\right)$

j) $\left(\frac{1}{6}\right)$

2. Circle the proper fractions, tick (✓) the improper fractions and cross (×) the mixed numbers.

a) $\left(\frac{1}{4}\right)$

b) $\frac{11}{8}$ ✓

c) $3\frac{1}{2}$ ×

d) $\frac{7}{2}$ ✓

e) $2\frac{4}{9}$ ×

f) $\frac{4}{2}$ ✓

g) $\frac{9}{6}$ ✓

h) $\left(\frac{2}{7}\right)$

i) $7\frac{9}{10}$ ×

j) $\frac{13}{5}$ ✓

k) $\frac{12}{7}$ ✓

l) $5\frac{4}{7}$ ×

m) $\frac{13}{8}$ ✓

n) $\left(\frac{9}{11}\right)$

o) $\left(\frac{5}{9}\right)$

Learning Check 3.5

1. Convert the following fractions into mixed numbers.

a) $\frac{9}{4}$

Solution:

$$\frac{9}{4} = 9 \div 4$$

$$\begin{array}{r} 2 \\ 4 \overline{) 9} \\ \underline{-8} \\ 1 \end{array}$$

$$\frac{9}{4} = 2\frac{1}{4} \quad \text{Answer}$$

b) $\frac{13}{11}$

Solution:

$$\frac{13}{11} = 13 \div 11$$

$$\begin{array}{r} 1 \\ 11 \overline{) 13} \\ \underline{-11} \\ 2 \end{array}$$

$$\frac{13}{11} = 1\frac{2}{11} \quad \text{Answer}$$

c) $\frac{3}{2}$

Solution:

$$\frac{3}{2} = 3 \div 2$$

$$\begin{array}{r} 1 \\ 2 \overline{) 3} \\ \underline{-2} \\ 1 \end{array}$$

$$\frac{3}{2} = 1\frac{1}{2} \quad \text{Answer}$$

d) $\frac{9}{7}$

Solution:

$$\frac{9}{7} = 9 \div 7$$

$$\begin{array}{r} 1 \\ 7 \overline{) 9} \\ \underline{-7} \\ 2 \end{array}$$

$$\frac{9}{7} = 1\frac{2}{7} \quad \text{Answer}$$

e) $\frac{11}{9}$

Solution:

$$\frac{11}{9} = 11 \div 9 \quad 9 \overline{) 11} \quad \begin{array}{r} 1 \\ 9 \\ \hline 2 \end{array}$$

$$\frac{11}{9} = 1\frac{2}{9} \text{ Answer}$$

f) $\frac{10}{7}$

Solution:

$$\frac{10}{7} = 10 \div 7 \quad 7 \overline{) 10} \quad \begin{array}{r} 1 \\ 7 \\ \hline 3 \end{array}$$

$$\frac{10}{7} = 1\frac{3}{7} \text{ Answer}$$

g) $\frac{9}{5}$

Solution:

$$\frac{9}{5} = 9 \div 5 \quad 5 \overline{) 9} \quad \begin{array}{r} 1 \\ 5 \\ \hline 4 \end{array}$$

$$\frac{9}{5} = 1\frac{4}{5} \text{ Answer}$$

h) $\frac{8}{7}$

Solution:

$$\frac{8}{7} = 8 \div 7 \quad 7 \overline{) 8} \quad \begin{array}{r} 1 \\ 7 \\ \hline 1 \end{array}$$

$$\frac{8}{7} = 1\frac{1}{7} \text{ Answer}$$

i) $\frac{15}{11}$

Solution:

$$\frac{15}{11} = 15 \div 11 \quad 11 \overline{) 15} \quad \begin{array}{r} 1 \\ 11 \\ \hline 4 \end{array}$$

$$\frac{15}{11} = 1\frac{4}{11} \text{ Answer}$$

j) $\frac{16}{5}$

Solution:

$$\frac{16}{5} = 16 \div 5 \quad 5 \overline{) 16} \quad \begin{array}{r} 3 \\ 15 \\ \hline 1 \end{array}$$

$$\frac{16}{5} = 3\frac{1}{5} \text{ Answer}$$

2. Convert the following mixed numbers into improper fractions.

a) $4\frac{2}{3}$

Solution:

$$\text{improper fraction} = \frac{(4 \times 3) + 2}{3}$$

$$= \frac{12 + 2}{3}$$

$$= \frac{14}{3}$$

$$\text{So, } 4\frac{2}{3} = \frac{14}{3} \text{ Answer}$$

b) $3\frac{1}{7}$

Solution:

$$\text{improper fraction} = \frac{(3 \times 7) + 1}{7}$$

$$= \frac{21 + 1}{7}$$

$$= \frac{22}{7}$$

$$\text{So, } 3\frac{1}{7} = \frac{22}{7} \text{ Answer}$$

c) $2\frac{1}{2}$

Solution:

$$\begin{aligned}\text{improper fraction} &= \frac{(2 \times 2) + 1}{2} \\ &= \frac{4 + 1}{2} \\ &= \frac{5}{2}\end{aligned}$$

So, $2\frac{1}{2} = \frac{5}{2}$ Answer

d) $3\frac{2}{5}$

Solution:

$$\begin{aligned}\text{improper fraction} &= \frac{(3 \times 5) + 2}{5} \\ &= \frac{15 + 2}{5} \\ &= \frac{17}{5}\end{aligned}$$

So, $3\frac{2}{5} = \frac{17}{5}$ Answer

e) $6\frac{1}{9}$

Solution:

$$\begin{aligned}\text{improper fraction} &= \frac{(6 \times 9) + 1}{9} \\ &= \frac{54 + 1}{9} \\ &= \frac{55}{9}\end{aligned}$$

So, $6\frac{1}{9} = \frac{55}{9}$ Answer

f) $2\frac{5}{6}$

Solution:

$$\begin{aligned}\text{improper fraction} &= \frac{(2 \times 6) + 5}{6} \\ &= \frac{12 + 5}{6} \\ &= \frac{17}{6}\end{aligned}$$

So, $2\frac{5}{6} = \frac{17}{6}$ Answer

g) $1\frac{3}{11}$

Solution:

$$\begin{aligned}\text{improper fraction} &= \frac{(1 \times 11) + 3}{11} \\ &= \frac{11 + 3}{11} \\ &= \frac{14}{11}\end{aligned}$$

So, $1\frac{3}{11} = \frac{14}{11}$ Answer

h) $4\frac{6}{13}$

Solution:

$$\begin{aligned}\text{improper fraction} &= \frac{(4 \times 13) + 6}{13} \\ &= \frac{52 + 6}{13} \\ &= \frac{58}{13}\end{aligned}$$

So, $4\frac{6}{13} = \frac{58}{13}$ Answer

i) $9\frac{3}{11}$

Solution:

$$\begin{aligned}\text{improper fraction} &= \frac{(9 \times 11) + 3}{11} \\ &= \frac{99 + 3}{11} \\ &= \frac{102}{11}\end{aligned}$$

So, $9\frac{3}{11} = \frac{102}{11}$ Answer

j) $8\frac{4}{5}$

Solution:

$$\begin{aligned}\text{improper fraction} &= \frac{(8 \times 5) + 4}{5} \\ &= \frac{40 + 4}{5} \\ &= \frac{44}{5}\end{aligned}$$

So, $8\frac{4}{5} = \frac{44}{5}$ Answer

Learning Check 3.6

1. Add the following.

a) $\frac{3}{5} + \frac{1}{5}$

Solution:

$$= \frac{3 + 1}{5} = \frac{4}{5} \text{ Answer}$$

b) $\frac{1}{4} + \frac{2}{4}$

Solution:

$$= \frac{1 + 2}{4} = \frac{3}{4} \text{ Answer}$$

c) $\frac{2}{5} + \frac{2}{5}$

Solution:

$$\begin{aligned}&= \frac{2 + 2}{5} \\ &= \frac{4}{5} \text{ Answer}\end{aligned}$$

d) $\frac{3}{10} + \frac{1}{10}$

Solution:

$$= \frac{3 + 1}{10} = \frac{4}{10}$$

Simplify

$$= \frac{4 \div 2}{10 \div 2} = \frac{2}{5} \text{ Answer}$$

e) $\frac{2}{8} + \frac{5}{8}$

Solution:

$$= \frac{2 + 5}{8} = \frac{7}{8} \text{ Answer}$$

f) $\frac{4}{9} + \frac{1}{9}$

Solution:

$$= \frac{4 + 1}{9} = \frac{5}{9}$$

$$g) \frac{1}{3} + \frac{1}{3}$$

Solution:

$$= \frac{1+1}{3}$$

$$= \frac{2}{3} \text{ Answer}$$

$$h) \frac{1}{6} + \frac{2}{6}$$

Solution:

$$= \frac{1+2}{6} = \frac{3}{6}$$

Simplify:

$$= \frac{3 \div 3}{6 \div 3} = \frac{1}{2} \text{ Answer}$$

2. Subtract the following.

$$a) \frac{5}{7} - \frac{4}{7}$$

Solution:

$$= \frac{5-4}{7} = \frac{1}{7} \text{ Answer}$$

$$b) \frac{4}{9} - \frac{2}{9}$$

Solution:

$$= \frac{4-2}{9} = \frac{2}{9} \text{ Answer}$$

$$c) \frac{7}{12} - \frac{3}{12}$$

Solution:

$$= \frac{7-3}{12} = \frac{4}{12}$$

Simplify:

$$= \frac{4 \div 4}{12 \div 4} = \frac{1}{3} \text{ Answer}$$

$$d) \frac{9}{10} - \frac{5}{10}$$

Solution:

$$= \frac{9-5}{10} = \frac{4}{10}$$

Simplify:

$$= \frac{4 \div 2}{10 \div 2} = \frac{2}{5} \text{ Answer}$$

$$e) \frac{5}{12} - \frac{4}{12}$$

Solution:

$$= \frac{5-4}{12} = \frac{1}{12} \text{ Answer}$$

$$f) \frac{2}{5} - \frac{1}{5}$$

Solution:

$$= \frac{2-1}{5} = \frac{1}{5} \text{ Answer}$$

$$g) \frac{7}{8} - \frac{5}{8}$$

Solution:

$$= \frac{7-5}{8} = \frac{2}{8}$$

Simplify:

$$= \frac{2 \div 2}{8 \div 2} = \frac{1}{4} \text{ Answer}$$

$$h) \frac{3}{7} - \frac{1}{7}$$

Solution:

$$= \frac{3-1}{7}$$

$$= \frac{2}{7} \text{ Answer}$$

Learning Check 3.7

1. Multiply these.

a) $\frac{1}{9} \times 4$

Solution:

$$\begin{aligned}\frac{1}{9} \times 4 &= \frac{1 \times 4}{9} \\ &= \frac{4}{9} \text{ Answer}\end{aligned}$$

b) $\frac{5}{8} \times 6$

Solution:

$$\begin{aligned}\frac{5}{8} \times 6 &= \frac{5 \times \overset{3}{\cancel{6}}}{\cancel{8}_4} \\ &= \frac{15}{4} = 3\frac{3}{4} \text{ Answer}\end{aligned}$$

c) $5\frac{2}{11} \times 5$

Solution:

$$\begin{aligned}5\frac{2}{11} \times 5 &= \frac{57}{11} \times 5 \\ &= \frac{57 \times 5}{11} \\ &= \frac{285}{11} = 25\frac{10}{11} \text{ Answer}\end{aligned}$$

d) $2\frac{5}{13} \times 9$

Solution:

$$\begin{aligned}2\frac{5}{13} \times 9 &= \frac{31}{13} \times 9 \\ &= \frac{31 \times 9}{13} \\ &= \frac{279}{13} = 21\frac{6}{13} \text{ Answer}\end{aligned}$$

e) $\frac{3}{4} \times 11$

Solution:

$$\begin{aligned}\frac{3}{4} \times 11 &= \frac{3 \times 11}{4} \\ &= \frac{33}{4} = 8\frac{1}{4} \text{ Answer}\end{aligned}$$

f) $\frac{6}{9} \times 18$

Solution:

$$\begin{aligned}\frac{6}{9} \times 18 &= \frac{6 \times 18}{9} \\ &= \frac{\overset{12}{\cancel{108}}}{\cancel{9}_1} = 12 \text{ Answer}\end{aligned}$$

g) $\frac{5}{6} \times 12$

Solution:

$$\begin{aligned}\frac{5}{6} \times 12 &= \frac{5 \times \overset{2}{\cancel{12}}}{\cancel{6}_1} \\ &= 10 \text{ Answer}\end{aligned}$$

h) $3\frac{2}{3} \times 7$

Solution:

$$\begin{aligned}3\frac{2}{3} \times 7 &= \frac{11}{3} \times 7 \\ &= \frac{11 \times 7}{3} \\ &= \frac{77}{3} = 25\frac{2}{3} \text{ Answer}\end{aligned}$$

2. Multiply the following fractions.

a) $\frac{19}{9} \times \frac{3}{6}$

Solution:

$$\begin{aligned}\frac{19}{9} \times \frac{3}{6} &= \frac{19 \times \overset{1}{\cancel{3}}}{\underset{3}{\cancel{9}} \times 6} \\ &= \frac{19}{18} \\ &= 1\frac{1}{18} \text{ Answer}\end{aligned}$$

b) $7\frac{2}{9} \times \frac{1}{3}$

Solution:

$$\begin{aligned}7\frac{2}{9} \times \frac{1}{3} &= \frac{65}{9} \times \frac{1}{3} \\ &= \frac{65 \times 1}{9 \times 3} \\ &= \frac{65}{27} = 2\frac{11}{27} \text{ Answer}\end{aligned}$$

c) $\frac{5}{6} \times \frac{4}{9}$

Solution:

$$\begin{aligned}\frac{5}{6} \times \frac{4}{9} &= \frac{5 \times \overset{2}{\cancel{4}}}{\underset{3}{\cancel{6}} \times 9} \\ &= \frac{10}{27} \text{ Answer}\end{aligned}$$

d) $\frac{8}{15} \times \frac{3}{10}$

Solution:

$$\begin{aligned}\frac{8}{15} \times \frac{3}{10} &= \frac{\overset{4}{\cancel{8}} \times \overset{1}{\cancel{3}}}{\underset{5}{\cancel{15}} \times \underset{5}{\cancel{10}}} \\ &= \frac{4}{25} \text{ Answer}\end{aligned}$$

e) $\frac{1}{4} \times \frac{1}{6}$

Solution:

$$\begin{aligned}\frac{1}{4} \times \frac{1}{6} &= \frac{1 \times 1}{4 \times 6} \\ &= \frac{1}{24} \text{ Answer}\end{aligned}$$

f) $8\frac{3}{4} \times 5\frac{5}{6}$

Solution:

$$\begin{aligned}8\frac{3}{4} \times 5\frac{5}{6} &= \frac{35}{4} \times \frac{35}{6} \\ &= \frac{35 \times 35}{4 \times 6} \\ &= \frac{1225}{24} = 51\frac{1}{24} \text{ Answer}\end{aligned}$$

g) $1\frac{1}{4} \times \frac{1}{4}$

Solution:

$$\begin{aligned}1\frac{1}{4} \times \frac{1}{4} &= \frac{5}{4} \times \frac{1}{4} \\ &= \frac{5 \times 1}{4 \times 4} \\ &= \frac{5}{16} \text{ Answer}\end{aligned}$$

h) $\frac{5}{12} \times \frac{2}{6}$

Solution:

$$\begin{aligned}\frac{5}{12} \times \frac{2}{6} &= \frac{5 \times \overset{1}{\cancel{2}}}{\underset{6}{\cancel{12}} \times 6} \\ &= \frac{5}{36} \text{ Answer}\end{aligned}$$

Learning Check 3.8

Divide the following.

a) $\frac{6}{3} \div 3$

Solution:

$$\begin{aligned}\frac{6}{3} \div 3 &= \frac{6}{3} \times \frac{1}{3} \\ &= \frac{\cancel{6}^2 \times 1}{3 \times \cancel{3}_1} \\ &= \frac{2}{3} \text{ Answer}\end{aligned}$$

b) $\frac{1}{12} \div 6$

Solution:

$$\begin{aligned}\frac{1}{12} \div 6 &= \frac{1}{12} \times \frac{1}{6} \\ &= \frac{1 \times 1}{12 \times 6} \\ &= \frac{1}{72} \text{ Answer}\end{aligned}$$

c) $\frac{4}{9} \div 3$

Solution:

$$\begin{aligned}\frac{4}{9} \div 3 &= \frac{4}{9} \times \frac{1}{3} \\ &= \frac{4 \times 1}{9 \times 3} \\ &= \frac{4}{27} \text{ Answer}\end{aligned}$$

d) $6\frac{1}{3} \div 19$

Solution:

$$\begin{aligned}6\frac{1}{3} \div 19 &= \frac{19}{3} \div 19 \\ &= \frac{\cancel{19}^1}{3} \times \frac{1}{\cancel{19}_1} \\ &= \frac{1}{3} \text{ Answer}\end{aligned}$$

e) $\frac{8}{11} \div 33$

Solution:

$$\begin{aligned}\frac{8}{11} \div 33 &= \frac{8}{11} \times \frac{1}{33} \\ &= \frac{8 \times 1}{11 \times 33} \\ &= \frac{8}{363} \text{ Answer}\end{aligned}$$

f) $\frac{10}{3} \div 20$

Solution:

$$\begin{aligned}\frac{10}{3} \div 20 &= \frac{10}{3} \times \frac{1}{20} \\ &= \frac{\cancel{10}^1 \times 1}{3 \times \cancel{20}_2} \\ &= \frac{1}{6} \text{ Answer}\end{aligned}$$

$$g) \frac{4}{6} \div 16$$

Solution:

$$\begin{aligned} \frac{4}{6} \div 16 &= \frac{4}{6} \times \frac{1}{16} \\ &= \frac{\overset{1}{\cancel{4}} \times 1}{6 \times \cancel{16}^4} \\ &= \frac{1}{24} \text{ Answer} \end{aligned}$$

$$h) 4\frac{4}{5} \div 8$$

Solution:

$$\begin{aligned} 4\frac{4}{5} \div 8 &= \frac{24}{5} \div 8 \\ &= \frac{\overset{3}{\cancel{24}}}{5} \times \frac{1}{\cancel{8}_1} \\ &= \frac{3}{5} \text{ Answer} \end{aligned}$$

$$i) 3\frac{2}{5} \div 7$$

Solution:

$$\begin{aligned} 3\frac{2}{5} \div 7 &= \frac{17}{5} \div 7 \\ &= \frac{17}{5} \times \frac{1}{7} \\ &= \frac{17 \times 1}{5 \times 7} \\ &= \frac{17}{35} \text{ Answer} \end{aligned}$$

$$j) \frac{6}{15} \div 15$$

Solution:

$$\begin{aligned} \frac{6}{15} \div 15 &= \frac{6}{15} \times \frac{1}{15} \\ &= \frac{\overset{2}{\cancel{6}} \times 1}{15 \times \cancel{15}_5} \\ &= \frac{2}{75} \text{ Answer} \end{aligned}$$

$$k) 3\frac{1}{3} \div 20$$

Solution:

$$\begin{aligned} 3\frac{1}{3} \div 20 &= \frac{10}{3} \div 20 \\ &= \frac{10}{3} \times \frac{1}{20} \\ &= \frac{\overset{1}{\cancel{10}} \times 1}{3 \times \cancel{20}_2} \\ &= \frac{1}{6} \text{ Answer} \end{aligned}$$

$$l) 1\frac{1}{4} \div 4$$

Solution:

$$\begin{aligned} 1\frac{1}{4} \div 4 &= \frac{5}{4} \div 4 \\ &= \frac{5}{4} \times \frac{1}{4} \\ &= \frac{5 \times 1}{4 \times 4} \\ &= \frac{5}{16} \text{ Answer} \end{aligned}$$

Learning Check 3.9

1. Haris bought $\frac{2}{8}$ kg of strawberries and $\frac{3}{8}$ kg of cherries. How many strawberries and cherries did he buy altogether?

Solution:

$$\text{Haris bought strawberries} = \frac{2}{8} \text{ kg}$$

$$\text{Haris bought cherries} = \frac{3}{8} \text{ kg}$$

$$\begin{aligned} \text{Total number of strawberries and cherries} &= \frac{2}{8} + \frac{3}{8} \\ &= \frac{2+3}{8} = \frac{5}{8} \text{ kg} \end{aligned}$$

So, Haris bought $\frac{5}{8}$ kg of strawberries and cherries altogether.

2. Ali and Nida each has a bottle of juice. Ali's bottle has $\frac{5}{6}$ liters of juice and Nida's bottle has $\frac{2}{6}$ liters of juice. How many liters of juice is there altogether?

Solution:

$$\text{Ali's bottle has juice} = \frac{5}{6} \text{ liter}$$

$$\text{Nida's bottle has juice} = \frac{2}{6} \text{ liter}$$

$$\begin{aligned} \text{Juice altogether} &= \frac{5}{6} + \frac{2}{6} \\ &= \frac{5+2}{6} = \frac{7}{6} \text{ litres} \end{aligned}$$

So, there is $\frac{7}{6}$ litres of juice altogether.

3. Ahad bought a basket of fruit that weighs 12 kg. One half of the fruit is mangoes. What is the mass of the remaining fruit?

Solution:

$$\text{Weight of the basket of fruit} = 12 \text{ kg}$$

$$\text{Weight of mangoes} = \frac{1}{2} \text{ of } 12 \text{ kg}$$

$$= \frac{1}{\cancel{2}_1} \times \cancel{12}^6 \text{ kg}$$

$$\begin{aligned}\text{Mass of remaining fruit} &= 12 \text{ kg} - 6 \text{ kg} \\ &= 6 \text{ kg}\end{aligned}$$

So, the mass of remaining fruit is 6 kg.

4. A jug has $3\frac{3}{4}$ liters of juice. If $\frac{1}{2}$ of the juice has been served to guests, how many liters of the juice is left?

Solution:

$$\text{Total litres of juice} = 3\frac{3}{4} \text{ litres or } \frac{15}{4} \text{ litres}$$

$$\text{Litres of juice served to guests} = \frac{1}{2} \text{ of } \frac{15}{4} \text{ litres}$$

$$= \frac{1}{2} \times \frac{15}{4}$$

$$= \frac{1 \times 15}{2 \times 4} = \frac{15}{8} \text{ litres}$$

Litres of juice left

$$= \frac{15}{4} - \frac{15}{8}$$

$$= \frac{15 \times 2}{4 \times 2} - \frac{15}{8}$$

$$= \frac{30}{8} - \frac{15}{8}$$

$$= \frac{30 - 15}{8}$$

$$= \frac{15}{8} = 1\frac{7}{8} \text{ litres}$$

We cannot add or subtract unlike fractions (different denominators) so, we first convert them into like fractions.

So, $1\frac{7}{8}$ litres of juice is left.

5. The capacity of a tank is $4\frac{2}{3}$ liters. If it has $3\frac{1}{3}$ liters of water, what is its remaining capacity?

Solution:

$$\text{Total capacity of tank} = 4\frac{2}{3} \text{ litres or } \frac{14}{3} \text{ litres}$$

$$\text{Quantity of water in tank} = 3\frac{1}{3} \text{ litres or } \frac{10}{3} \text{ litres}$$

$$\text{Remaining capacity} = \frac{14}{3} - \frac{10}{3}$$

$$= \frac{14 - 10}{3}$$

$$= \frac{4}{3} \text{ litres}$$

So, the remaining capacity of the tank is $\frac{4}{3}$ litres.

- 6. Madiha spent $\frac{3}{7}$ hours solving Maths questions and $\frac{2}{7}$ hours completing her English homework. How much less time did she spend completing her English homework than solving Maths questions?**

Solution:

$$\text{Madiha spent solving Maths questions} = \frac{3}{7} \text{ hours}$$

$$\text{She spent completing English homework} = \frac{2}{7} \text{ hours}$$

$$\text{Difference between both} = \frac{3}{7} - \frac{2}{7}$$

$$= \frac{3 \times 2}{7} = \frac{1}{7} \text{ hours}$$

So, Madiha spent $\frac{1}{7}$ hours less in completing her English homework than solving Math questions.

- 7. If the length of 4 pieces of a rod is $4\frac{1}{12}$ m, find the length of one piece.**

Solution:

$$\text{Total length of 4 pieces of rod} = 4\frac{1}{12} \text{ m or } \frac{49}{12} \text{ m}$$

$$\text{Number of pieces} = 4$$

$$\text{Length of one piece} = \frac{49}{12} \times \frac{1}{4}$$

$$= \frac{49}{48} \text{ m}$$

or

$$= 1\frac{1}{48} \text{ m}$$

So, the length of one piece of rod is $1\frac{1}{48}$ m.

8. The weight of 7 jars of jam is $11\frac{1}{8}$ kg. What will be the weight of each jar of jam?

Solution:

$$\text{Total weight of jars of jam} = 11\frac{1}{8} \text{ kg or } \frac{89}{8} \text{ kg}$$

$$\text{Number of jars of jam} = 7$$

$$\begin{aligned}\text{Weight of each jar of jam} &= \frac{89}{8} \div 7 \\ &= \frac{89}{8} \times \frac{1}{7} \\ &= \frac{89 \times 1}{8 \times 7} \\ &= \frac{89}{56} \text{ or } 1\frac{33}{56} \text{ kg}\end{aligned}$$

So, the weight of each jar of jam is $1\frac{33}{56}$ kg.

Unit Check 3

1. Encircle the correct options.

- a) (i) proper b) (ii) different c) (ii) proper fraction
d) (ii) improper e) (ii) $\frac{11}{9}$

2. Tick (✓) the unit fractions.

- a) $\frac{4}{5}$ b) $\frac{1}{9}$ ✓ c) $\frac{6}{7}$ d) $\frac{1}{5}$ ✓ e) $\frac{1}{11}$ ✓

3. Identify and circle the like fractions from the following fractions.

- a) $\left(\frac{1}{7}, \frac{3}{7}\right)$ b) $\frac{4}{9}, \frac{4}{8}$ c) $\frac{4}{5}, \frac{1}{6}, \frac{2}{7}$ d) $\left(\frac{7}{8}, \frac{3}{8}\right)$
e) $\left(\frac{3}{11}, \frac{5}{11}, \frac{9}{11}\right)$ f) $\left(\frac{5}{12}, \frac{7}{12}\right)$ g) $\frac{2}{3}, \frac{1}{4}$ h) $\frac{3}{13}, \frac{5}{12}$

4. Circle the mixed numbers.

- a) $\frac{4}{9}$ b) $3\frac{2}{5}$ c) $\frac{7}{4}$ d) $\frac{2}{7}$ e) $\frac{3}{7}$
f) $4\frac{4}{5}$ g) $\frac{1}{2}$ h) $8\frac{6}{7}$ i) $\frac{1}{2}$ j) $4\frac{1}{9}$

5. Compare the fractions and write $<$, $>$ or $=$.

a) $\frac{2}{5} \square \frac{1}{4}$

Solution:

$$\frac{2}{5} = \frac{2 \times 4}{5 \times 4} = \frac{8}{20}$$

$$\frac{1}{4} = \frac{1 \times 5}{4 \times 5} = \frac{5}{20}$$

as $\frac{8}{20} \square \frac{5}{20}$ so, $\frac{2}{5} \square \frac{1}{4}$

c) $\frac{1}{3} \square \frac{2}{5}$

Solution:

$$\frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \frac{5}{15}$$

$$\frac{2}{5} = \frac{2 \times 3}{5 \times 3} = \frac{6}{15}$$

as $\frac{5}{15} \square \frac{6}{15}$ so, $\frac{1}{3} \square \frac{2}{5}$

e) $\frac{8}{11} \square \frac{4}{10}$

Solution:

$$\frac{8}{11} = \frac{8 \times 10}{11 \times 10} = \frac{80}{110}$$

$$\frac{4}{10} = \frac{4 \times 11}{10 \times 11} = \frac{44}{110}$$

as $\frac{80}{110} \square \frac{44}{110}$ so, $\frac{8}{11} \square \frac{4}{10}$

g) $\frac{5}{7} \square \frac{6}{11}$

Solution:

$$\frac{5}{7} = \frac{5 \times 11}{7 \times 11} = \frac{55}{77}$$

$$\frac{6}{11} = \frac{6 \times 7}{11 \times 7} = \frac{42}{77}$$

as $\frac{55}{77} \square \frac{42}{77}$ so, $\frac{5}{7} \square \frac{6}{11}$

b) $\frac{7}{8} \square \frac{2}{9}$

Solution:

$$\frac{7}{8} = \frac{7 \times 9}{8 \times 9} = \frac{63}{72}$$

$$\frac{2}{9} = \frac{2 \times 8}{9 \times 8} = \frac{16}{72}$$

as $\frac{63}{72} \square \frac{16}{72}$ so, $\frac{7}{8} \square \frac{2}{9}$

d) $\frac{4}{7} \square \frac{8}{14}$

Solution:

$$\frac{4}{7} = \frac{4 \times 2}{7 \times 2} = \frac{8}{14}$$

$$\frac{8}{14} = \frac{8 \times 1}{14 \times 1} = \frac{8}{14}$$

as $\frac{8}{14} \square \frac{8}{14}$ so, $\frac{4}{7} \square \frac{8}{14}$

f) $\frac{1}{5} \square \frac{2}{4}$

Solution:

$$\frac{1}{5} = \frac{1 \times 4}{5 \times 4} = \frac{4}{20}$$

$$\frac{2}{4} = \frac{2 \times 5}{4 \times 5} = \frac{10}{20}$$

as $\frac{4}{20} \square \frac{10}{20}$ so, $\frac{1}{5} \square \frac{2}{5}$

h) $\frac{3}{5} \square \frac{1}{2}$

Solution:

$$\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$$

$$\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10}$$

as $\frac{6}{10} \square \frac{5}{10}$ so, $\frac{3}{5} \square \frac{1}{2}$

6. Order the given fractions in ascending and descending order.

a) $\frac{3}{4}, \frac{2}{3}, \frac{1}{5}$

Solution:

To arrange the fractions in ascending or descending order, first we convert them into like fractions.

$$\frac{3}{4} = \frac{3 \times 15}{4 \times 15} = \frac{45}{60}, \quad \frac{2}{3} = \frac{2 \times 20}{3 \times 20} = \frac{40}{60}, \quad \frac{1}{5} = \frac{1 \times 12}{5 \times 12} = \frac{12}{60}$$

$$\text{as } \frac{45}{60} > \frac{40}{60} > \frac{12}{60}$$

$$\text{So, Ascending order} = \frac{1}{5}, \frac{2}{3}, \frac{3}{4} \quad \text{Descending order} = \frac{3}{4}, \frac{2}{3}, \frac{1}{5}$$

b) $\frac{5}{6}, \frac{3}{5}, \frac{7}{10}$

Solution:

To arrange the fractions in ascending or descending order, first we convert them into like fractions.

$$\frac{5}{6} = \frac{5 \times 5}{6 \times 5} = \frac{25}{30}, \quad \frac{3}{5} = \frac{3 \times 6}{5 \times 6} = \frac{18}{30}, \quad \frac{7}{10} = \frac{7 \times 3}{10 \times 3} = \frac{21}{30}$$

$$\text{as } \frac{18}{30} < \frac{21}{30} < \frac{25}{30}$$

$$\text{So, Ascending order} = \frac{3}{5}, \frac{7}{10}, \frac{5}{6} \quad \text{Descending order} = \frac{5}{6}, \frac{7}{10}, \frac{3}{5}$$

c) $\frac{8}{9}, \frac{1}{3}, \frac{1}{6}$

Solution:

To arrange the fractions in ascending or descending order, first we convert them into like fractions.

$$\frac{8}{9} = \frac{8 \times 2}{9 \times 2} = \frac{16}{18}, \quad \frac{1}{3} = \frac{1 \times 6}{3 \times 6} = \frac{6}{18}, \quad \frac{1}{6} = \frac{1 \times 3}{6 \times 3} = \frac{3}{18}$$

$$\text{as } \frac{3}{18} < \frac{6}{18} < \frac{16}{18}$$

$$\text{So, Ascending order} = \frac{1}{6}, \frac{1}{3}, \frac{8}{9} \quad \text{Descending order} = \frac{8}{9}, \frac{1}{3}, \frac{1}{6}$$

7. Add the fractions.

a) $\frac{1}{5} + \frac{3}{5}$

Solution:

$$= \frac{1+3}{5}$$
$$= \frac{4}{5} \text{ Answer}$$

b) $3\frac{7}{24} + 1\frac{11}{24}$

Solution:

$$= \frac{79}{24} + \frac{35}{24}$$
$$= \frac{79+35}{24} = \frac{114}{24}$$
$$= \frac{19}{4} = 4\frac{3}{4} \text{ Answer}$$

c) $\frac{2}{5} + \frac{4}{5}$

Solution:

$$= \frac{2+4}{5}$$
$$= \frac{6}{5} = 1\frac{1}{5} \text{ Answer}$$

d) $\frac{1}{6} + \frac{2}{6}$

Solution:

$$= \frac{1+2}{6} = \frac{3}{6}$$
$$= \frac{1}{2} \text{ Answer}$$

8. Subtract the fractions.

a) $\frac{3}{4} - \frac{1}{4}$

Solution:

$$= \frac{3-1}{4}$$
$$= \frac{2}{4} = \frac{1}{2} \text{ Answer}$$

b) $\frac{14}{25} - \frac{4}{25}$

Solution:

$$= \frac{14-4}{25}$$
$$= \frac{10}{25} = \frac{2}{5} \text{ Answer}$$

$$c) \frac{19}{20} - \frac{18}{20}$$

Solution:

$$= \frac{19 - 18}{20}$$

$$= \frac{1}{20} \text{ Answer}$$

$$d) \frac{10}{11} - \frac{7}{11}$$

Solution:

$$= \frac{10 - 7}{11}$$

$$= \frac{3}{11} \text{ Answer}$$

9. Multiply the following.

$$a) \frac{11}{25} \times 75$$

Solution:

$$\begin{aligned} \frac{11}{25} \times 75 &= \frac{11 \times \overset{3}{\cancel{75}}}{\cancel{25}_1} \\ &= \frac{33}{1} \text{ Answer} \end{aligned}$$

$$b) \frac{4}{15} \times \frac{25}{12}$$

Solution:

$$\begin{aligned} \frac{4}{15} \times \frac{25}{12} &= \frac{\overset{1}{\cancel{4}} \times \overset{5}{\cancel{25}}}{\underset{3}{\cancel{15}} \times \underset{3}{\cancel{12}}} \\ &= \frac{5}{9} \text{ Answer} \end{aligned}$$

$$c) 5\frac{6}{18} \times \frac{27}{42}$$

Solution:

$$\begin{aligned} 5\frac{6}{18} \times \frac{27}{42} &= \frac{96}{18} \times \frac{27}{42} \\ &= \frac{96 \times \overset{3}{\cancel{27}}}{\underset{2}{\cancel{18}} \times 42} \\ &= \frac{\overset{16}{\cancel{96}} \times 3}{2 \times \underset{7}{\cancel{42}}} = \frac{\overset{8}{\cancel{16}} \times 3}{\underset{1}{\cancel{2}} \times 7} \\ &= \frac{24}{7} = 3\frac{3}{7} \text{ Answer} \end{aligned}$$

$$d) \frac{3}{4} \times \frac{42}{51}$$

Solution:

$$\begin{aligned} \frac{3}{4} \times \frac{42}{51} &= \frac{\overset{1}{\cancel{3}} \times 42}{4 \times \underset{17}{\cancel{51}}} \\ &= \frac{1 \times \overset{21}{\cancel{42}}}{\underset{2}{\cancel{4}} \times 17} \\ &= \frac{1 \times 21}{2 \times 17} \\ &= \frac{21}{34} \text{ Answer} \end{aligned}$$

$$e) \frac{1}{4} \times \frac{7}{11}$$

Solution:

$$\begin{aligned} \frac{1}{4} \times \frac{7}{11} &= \frac{1 \times 7}{4 \times 11} \\ &= \frac{7}{44} \text{ Answer} \end{aligned}$$

$$f) 6\frac{1}{6} \times \frac{1}{8}$$

Solution:

$$\begin{aligned} 6\frac{1}{6} \times \frac{1}{8} &= \frac{37}{6} \times \frac{1}{8} \\ &= \frac{37 \times 1}{6 \times 8} \\ &= \frac{37}{48} \text{ Answer} \end{aligned}$$

g) $5\frac{6}{18} \times 5\frac{6}{18}$

Solution:

$$\begin{aligned} 5\frac{6}{18} \times 5\frac{6}{18} &= \frac{96}{18} \times \frac{96}{18} \\ &= \frac{\overset{16}{\cancel{96}} \times \overset{16}{\cancel{96}}}{\underset{3}{\cancel{18}} \times \underset{3}{\cancel{18}}} \\ &= \frac{256}{9} \\ &= 28\frac{4}{9} \text{ Answer} \end{aligned}$$

10. Divide the following.

a) $\frac{27}{65} \div 9$

Solution:

$$\begin{aligned} \frac{27}{65} \div 9 &= \frac{\overset{3}{\cancel{27}}}{65} \times \frac{1}{\cancel{9}_1} \\ &= \frac{3 \times 1}{65 \times 1} \\ &= \frac{3}{65} \text{ Answer} \end{aligned}$$

b) $4\frac{4}{11} \div 12$

Solution:

$$\begin{aligned} 4\frac{4}{11} \div 12 &= \frac{48}{11} \div 12 \\ &= \frac{\overset{4}{\cancel{48}}}{11} \times \frac{1}{\cancel{12}_1} = \frac{4 \times 1}{11 \times 1} \\ &= \frac{4}{11} \text{ Answer} \end{aligned}$$

c) $\frac{17}{45} \div 34$

Solution:

$$\begin{aligned} \frac{17}{45} \div 34 &= \frac{17}{45} \times \frac{1}{34} \\ &= \frac{\overset{1}{\cancel{17}} \times 1}{45 \times \cancel{34}_2} = \frac{1 \times 1}{45 \times 2} \\ &= \frac{1}{90} \text{ Answer} \end{aligned}$$

b) $5\frac{1}{18} \div 13$

Solution:

$$\begin{aligned} 5\frac{1}{18} \div 13 &= \frac{91}{18} \div 13 \\ &= \frac{\overset{7}{\cancel{91}}}{18} \times \frac{1}{\cancel{13}_1} = \frac{7 \times 1}{18 \times 1} \\ &= \frac{7}{18} \text{ Answer} \end{aligned}$$

- 11. Fahad spent $\frac{1}{3}$ hours reading an Islamic story and $\frac{2}{3}$ hours completing his homework. How much more time did he spend completing his homework than reading the story?**

Solution:

$$\text{Fahad spent reading Islamic story} = \frac{1}{3} \text{ hours}$$

$$\text{Fahad spent completing homework} = \frac{2}{3} \text{ hours}$$

$$\begin{aligned} \text{Difference between both} &= \frac{2}{3} - \frac{1}{3} \\ &= \frac{2-1}{3} \\ &= \frac{1}{3} \text{ hours} \end{aligned}$$

So, Fahad spent $\frac{1}{3}$ hours more in completing his homework than reading the story.

- 12. Hina has 2 strings of length $\frac{3}{8}$ m and $\frac{6}{8}$ m respectively. What is the total length of both strings?**

Solution:

$$\text{Length of one string} = \frac{3}{8} \text{ m}$$

$$\text{Length of second string} = \frac{6}{8} \text{ m}$$

$$\begin{aligned} \text{Total length of both strings} &= \frac{3}{8} + \frac{6}{8} \\ &= \frac{3+6}{8} \\ &= \frac{9}{8} \\ &= 1\frac{1}{8} \end{aligned}$$

So, the total length of both strings are $1\frac{1}{8}$ m.

- 13. The length of a piece of electric wire is $18\frac{1}{2}$ meters. Find the total length of 8 such pieces.**

Solution:

$$\text{Length of one piece of wire} = 18\frac{1}{2} \text{ m}$$

$$\text{Number of pieces} = 8$$

$$\begin{aligned}\text{Total length of 8 pieces} &= 18\frac{1}{2} \times 8 \\ &= \frac{37}{2} \times \cancel{8}^4 \\ &= 148 \text{ metres}\end{aligned}$$

So, the length of 8 pieces of wire is 148 metres.

- 14 A tailor uses $9\frac{1}{4}$ m of cloth to stitch 5 scarves of the same size. How much cloth was used to stitch each scarf?**

Solution:

$$\text{Total length of cloth} = 9\frac{1}{4} \text{ m}$$

$$\text{Number of scarves stitched} = 5$$

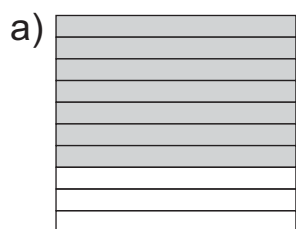
$$\begin{aligned}\text{Length of each scarf} &= 9\frac{1}{4} \div 5 \\ &= \frac{37}{4} \times \frac{1}{5} \\ &= \frac{37}{20} \\ &= 1\frac{17}{20} \text{ m}\end{aligned}$$

So, $1\frac{17}{20}$ m of cloth was used to stitch each scarf,

Unit 4: Decimals

Learning Check 4.1

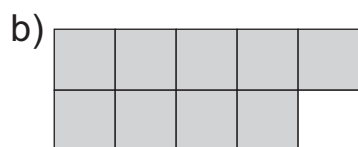
1. Represent the coloured portion of each figure in decimal and fraction form. Also write it in words.



fraction: $\frac{7}{10}$

decimal: 0.7

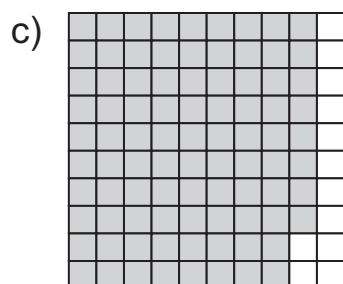
words: 7 tenths or zero point seven



fraction: $\frac{9}{10}$

decimal: 0.9

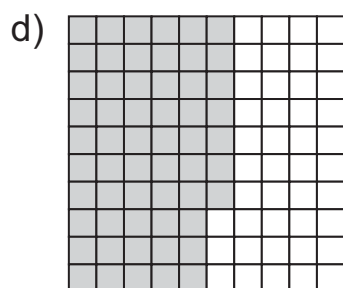
words: 9 tenths or zero point nine



fraction: $\frac{88}{100}$

decimal: 0.88

words: Eighty-eight hundredths or zero point eight eight



fraction: $\frac{57}{100}$

decimal: 0.57

words: Fifty-seven hundredths or zero point five seven

2. Write the following as decimals.

a) $\frac{2}{10}$

Solution:

$$= \frac{2}{10}$$

= 0.2 Answer

b) $\frac{7}{10}$

Solution:

$$= \frac{7}{10}$$

= 0.7 Answer

c) $\frac{1}{100}$

Solution:

$$= \frac{1}{100}$$

= 0.01 Answer

d) three-tenths

Solution:

three-tenths or $\frac{3}{10}$

= 0.3 Answer

e) eight tenths

Solution:

eight tenths or $\frac{8}{10}$

= 0.8 Answer

f) $1\frac{1}{10}$

Solution:

= $1\frac{1}{10}$

= 1.1 Answer

g) $\frac{10}{100}$

Solution:

= $\frac{10}{100}$

= 0.10 Answer

h) $\frac{99}{100}$

Solution:

= $\frac{99}{100}$

= 0.99 Answer

i) $\frac{67}{1000}$

Solution:

= $\frac{67}{1000}$

= 0.067 Answer

j) thirty-three hundredths

Solution:

thirty-three hundredths

= $\frac{33}{100}$

= 0.33 Answer

k) 167 hundredths

Solution:

167 hundredths

= $\frac{167}{100}$

= 1.67 Answer

l) $3\frac{1}{1000}$

Solution:

$3\frac{1}{1000}$

= $\frac{3001}{1000}$

= 3.001 Answer

3. Write the following decimals in words.

a) 67.2

Answer

67.2

Words: sixty-seven point two

b) 3.8

Answer

3.8

Words: three point eight

c) 10.102

Answer

10.102

Words: ten point one zero two

d) 7.67

Answer

7.67

Words: seven point six seven

e) 23.87

Answer

23.87

Words: twenty three point eight seven

4. Write the following in decimal form.

a) twelve-hundredths

Answer = 0.12

c) five hundred and one point
eight two one

Answer = 501.821

e) one point zero zero nine

Answer = 1.009

b) nine point four four five

Answer = 9.445

d) fifty-eight thousandths

Answer = 0.058

5. Colour the shapes to show the correct tenths.



0.4

as, $0.4 = \frac{4}{10}$



0.8

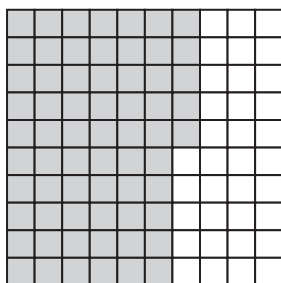
as, $0.8 = \frac{8}{10}$



0.3

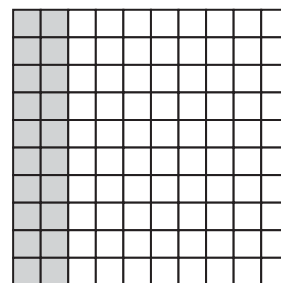
as, $0.3 = \frac{3}{10}$

6. Colour the shapes to show the correct hundredths.



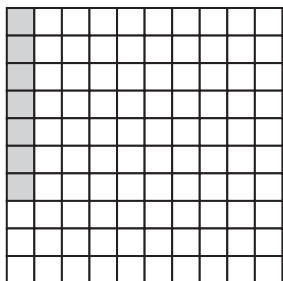
0.65

$0.65 = \frac{65}{100}$



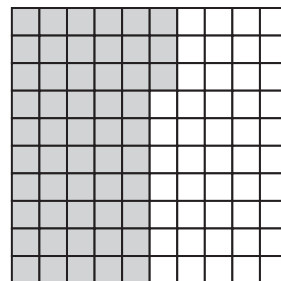
0.20

$0.20 = \frac{20}{100}$



0.07

$0.07 = \frac{7}{100}$



0.53

$0.53 = \frac{53}{100}$

Learning Check 4.2

1. Show the decimal numbers in a place value table and write the value of each digit.

a) 23.78

Answer:

Tens	Ones	Decimal Point	Tenths	Hundredths
2	3	.	7	8

The digit 2 is in the tens place, so its value is $2 \times 10 = 20$

The digit 3 is in the ones place, so its value is $3 \times 1 = 3$

The digit 7 is in the tenths place, so its value is $7 \times \frac{1}{10} = 0.7$

The digit 8 is in the hundredths place, so its value is $8 \times \frac{1}{100} = 0.08$

b) 213.790

Answer:

Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
2	1	3	.	7	9	0

The digit 2 is in the hundreds place, so its value is $2 \times 100 = 200$

The digit 1 is in the tens place, so its value is $1 \times 10 = 10$

The digit 3 is in the ones place, so its value is $3 \times 1 = 3$

The digit 7 is in the tenths place, so its value is $7 \times \frac{1}{10} = 0.7$

The digit 9 is in the hundredths place, so its value is $9 \times \frac{1}{100} = 0.09$

The digit 0 is in the thousandths place, so its value is $0 \times \frac{1}{1000} = 0.000$

c) 45.340

Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
4	5	.	3	4	0

The digit 4 is in the tens place, so its value is $4 \times 10 = 40$

The digit 5 is in the ones place, so its value is $5 \times 1 = 5$

The digit 3 is in the tenths place, so its value is $3 \times \frac{1}{10} = 0.3$

The digit 4 is in the hundredths place, so its value is $4 \times \frac{1}{100} = 0.04$

The digit 0 is in the thousandths place, so its value is $0 \times \frac{1}{1000} = 0.000$

d) 247.001

Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
2	4	7	.	0	0	1

The digit 2 is in the hundreds place, so its value is $2 \times 100 = 200$

The digit 4 is in the tens place, so its value is $4 \times 10 = 40$

The digit 7 is in the ones place, so its value is $7 \times 1 = 7$

The digit 0 is in the tenths place, so its value is $0 \times \frac{1}{10} = 0.0$

The digit 0 is in the hundredths place, so its value is $0 \times \frac{1}{100} = 0.00$

The digit 1 is in the thousandths place, so its value is $1 \times \frac{1}{1000} = 0.001$

e) 1.607

Ones	Decimal Point	Tenths	Hundredths	Thousandths
1	.	6	0	7

The digit 1 is in the ones place, so its value is $1 \times 1 = 1$

The digit 6 is in the tenths place, so its value is $6 \times \frac{1}{10} = 0.6$

The digit 0 is in the hundredths place, so its value is $0 \times \frac{1}{100} = 0.00$

The digit 7 is in the thousandths place, so its value is $7 \times \frac{1}{1000} = 0.007$

2. Write the place value and value of the underlined digits.

a) 0.34

Answer

Place value = hundredths

Value = 0.04

b) 12.45

Answer

Place value = ones

Value = 2

c) 456.012

Answer

Place value = tens

Value = 50

d) 0.012

Answer

Place value = tenths

Value = 0.0

e) 213.345

Answer

Place value = tens

Value = 10

3. Write the following in expanded form and word form.

a) 239.86

Answer:

Expanded form:

$$= 2 \times 100 + 3 \times 10 + 9 \times 1 + 8 \times \frac{1}{10} + 6 \times \frac{1}{100}$$

$$= 200 + 30 + 9 + 0.8 + 0.06$$

Word form: two hundred and thirty nine point eight six

b) 76.8

Answer:

Expanded form:

$$= 7 \times 10 + 6 \times 1 + 8 \times \frac{1}{10}$$

$$= 70 + 6 + 0.8$$

Word form: seventy six point eight

c) 0.167

Answer:

Expanded form:

$$= 0 \times 1 + 1 \times \frac{1}{10} + 6 \times \frac{1}{100} + 7 \times \frac{1}{1000}$$

$$= 0 + 0.1 + 0.06 + 0.007$$

Word form: zero point one six seven

d) 9.245

Answer:

Expanded form:

$$= 9 \times 1 + 2 \times \frac{1}{10} + 4 \times \frac{1}{100} + 5 \times \frac{1}{1000}$$

$$= 9 + 0.2 + 0.04 + 0.005$$

Word form: nine point two four five

e) 86.019

Answer:

Expanded form:

$$= 8 \times 10 + 6 \times 1 + 0 \times \frac{1}{10} + 1 \times \frac{1}{100} + 9 \times \frac{1}{1000}$$

$$= 80 + 6 + 0.0 + 0.01 + 0.009$$

Word form: eighty six point zero one nine

4. Underline the correct digit in each decimal.

a) Tenths: 56.829

Answer:

56.829

b) Hundredths: 10.526

Answer:

10.526

c) Tens: 45.324

Answer:

45.324

d) Ones: 87.109

Answer:

87.109

e) Hundredths: 17.024

Answer:

17.024

f) Thousandths: 55.245

Answer:

55.245

Learning Check 4.3

1. Convert the fractions into decimals.

a) $\frac{6}{10}$

Solution:

$$= \frac{6}{10}$$

= 0.6 Answer

b) $\frac{23}{10}$

Solution:

$$= \frac{23}{10}$$

= 2.3 Answer

c) $\frac{490}{100}$

Solution:

$$= \frac{49}{100}$$

= 4.90 Answer

d) $\frac{32}{1000}$

Solution:

$$= \frac{32}{1000}$$

= 0.032 Answer

e) $\frac{6}{1000}$

Solution:

$$= \frac{6}{1000}$$

= 0.006 Answer

f) $\frac{23}{50}$

Solution:

$$= \frac{23 \times 2}{50 \times 2}$$

$$= \frac{46}{100}$$

= 0.46 Answer

g) $\frac{3}{2}$

Solution:

$$= \frac{3 \times 5}{2 \times 5}$$

$$= \frac{15}{10}$$

= 1.5 Answer

h) $\frac{4}{5}$

Solution:

$$= \frac{4 \times 2}{5 \times 2}$$

$$= \frac{8}{10}$$

= 0.8 Answer

i) $\frac{3}{25}$

Solution:

$$= \frac{3 \times 4}{25 \times 4}$$

$$= \frac{12}{100}$$

= 0.12 Answer

j) $\frac{11}{20}$

Solution:

$$= \frac{11 \times 5}{20 \times 5}$$

$$= \frac{55}{100}$$

= 0.55 Answer

2. Convert the decimals into fractions.

a) 0.56

Solution:

$$= \frac{\cancel{56}^{14}}{\cancel{100}^{25}}$$

$$= \frac{14}{25} \text{ Answer}$$

b) 8.90

Solution:

$$= \frac{89}{10}$$

$$= 8\frac{9}{10} \text{ Answer}$$

c) 1.9

Solution:

$$= \frac{19}{10}$$

$$= 1\frac{9}{10} \text{ Answer}$$

d) 6.12

Solution:

$$= \frac{\cancel{612}^{153}}{\cancel{100}^{25}}$$

$$= \frac{153}{25}$$

$$= 6\frac{3}{25} \text{ Answer}$$

e) 9.340

Solution:

$$= \frac{\cancel{9340}^{467}}{\cancel{1000}^{50}}$$

$$= \frac{467}{50}$$

$$= 9\frac{17}{50} \text{ Answer}$$

f) 5.091

Solution:

$$= \frac{5091}{1000}$$

$$= 5\frac{91}{1000} \text{ Answer}$$

Learning Check 4.4

1. Add the following.

a) 23.7 + 12.8

Solution:

$$\begin{array}{r} 23.7 \\ + 12.8 \\ \hline 36.5 \end{array}$$

b) 5.90 + 4.54

Solution:

$$\begin{array}{r} 5.90 \\ + 4.54 \\ \hline 10.44 \end{array}$$

c) 2.23 + 2.06

Solution:

$$\begin{array}{r} 2.23 \\ + 2.06 \\ \hline 4.29 \end{array}$$

d) 7.07 + 4.51

Solution:

$$\begin{array}{r} 7.07 \\ + 4.51 \\ \hline 11.58 \end{array}$$

e) 4.34 + 6.40

Solution:

$$\begin{array}{r} 4.34 \\ + 6.40 \\ \hline 10.74 \end{array}$$

f) 5.26 + 4.53

Solution:

$$\begin{array}{r} 5.26 \\ + 4.53 \\ \hline 9.79 \end{array}$$

2. Subtract the following.

a) $98.4 - 19.4$

Solution:

$$\begin{array}{r} 98.4 \\ - 19.4 \\ \hline 79.0 \end{array}$$

b) $6.98 - 4.99$

Solution:

$$\begin{array}{r} 6.98 \\ - 4.99 \\ \hline 1.99 \end{array}$$

c) $58.7 - 49.6$

Solution:

$$\begin{array}{r} 58.7 \\ - 49.6 \\ \hline 9.1 \end{array}$$

d) $8.34 - 6.01$

Solution:

$$\begin{array}{r} 8.34 \\ - 6.01 \\ \hline 2.33 \end{array}$$

e) $5.45 - 3.62$

Solution:

$$\begin{array}{r} 5.45 \\ - 3.62 \\ \hline 1.83 \end{array}$$

f) $7.28 - 2.80$

Solution:

$$\begin{array}{r} 7.28 \\ - 2.80 \\ \hline 4.48 \end{array}$$

3. Saba weighs 45.7 kg and Umar weighs 37.6 kg. What is the difference between their weights?

Solution:

Weight of Saba = 45.7 kg

Weight of Umar = 37.6 kg

Difference between weights = $45.7 - 37.6$

$$\begin{array}{r} 45.7 \\ - 37.6 \\ \hline 8.1 \end{array}$$

So, the difference between saba and umar's weights is 8.1 kg.

4. A tank holds 40.5 liters of water. If 34.9 liters of water has been used, how much water is left in the tank?

Solution:

The tank holds water = 40.5

Water used = 34.9

Water left in the tank = $40.5 - 34.9$

So, 5.6 litres of water is left in the tank.

5. Waqas travelled 34.5 km on Monday and 26.4 km on Tuesday. How much did he travel altogether?

Solution:

$$\text{Waqas traveled on Monday} = \overset{\textcircled{1}}{3} 4 . 5 \text{ km}$$

$$\text{Waqas traveled on Tuesday} = + 2 6 . 4 \text{ km}$$

$$\text{He traveled altogether} = \underline{\underline{6 0 . 9 \text{ km}}}$$

So, Waqas travelled 60.9 km altogether.

Learning Check 4.5

Multiply the correct options.

a) 4.3×10

Solution:

$$4.3 \overset{\textcircled{1}}{\times} 10 = 43.0$$

or

$$\begin{array}{r} 4.3 \\ \times 10 \\ \hline 00 \\ + 430 \\ \hline 430 \end{array} \text{ Answer}$$

b) 9.2×100

Solution:

$$9.2 \overset{\textcircled{1}}{\times} \overset{\textcircled{2}}{100} = 920.0$$

or

$$\begin{array}{r} 9.2 \\ \times 100 \\ \hline 00 \\ 000 \\ + 920.0 \\ \hline 920.0 \end{array} \text{ Answer}$$

c) 7.8×1000

Solution:

$$7.8 \overset{\textcircled{1}}{\times} \overset{\textcircled{2}}{10} \overset{\textcircled{3}}{00} = 7800.0$$

or

$$\begin{array}{r} 7.8 \\ \times 1000 \\ \hline 00 \\ 000 \\ 0000 \\ + 78000 \\ \hline 78000.0 \end{array} \text{ Answer}$$

d) 0.8×100

Solution:

$$0.8 \overset{\textcircled{1}}{\times} \overset{\textcircled{2}}{100} = 80.0$$

or

$$\begin{array}{r} 0.8 \\ \times 100 \\ \hline 00 \\ 000 \\ + 080.0 \\ \hline 080.0 \end{array} \text{ Answer}$$

e) 5.1×2

Solution:

$$\begin{array}{r} 5.1 \\ \times 2 \\ \hline 10.2 \end{array}$$

$5.1 \times 2 = 10.2$ Answer

f) 9.1×6

Solution:

$$\begin{array}{r} 9.1 \\ \times 6 \\ \hline 54.6 \end{array}$$

$9.1 \times 6 = 54.6$ Answer

g) 6.8×4

Solution:

$$\begin{array}{r} \textcircled{3} 6.8 \\ \times 4 \\ \hline 27.2 \end{array}$$

Answer

h) 3.9×5

Solution:

$$\begin{array}{r} \textcircled{4} 3.9 \\ \times 5 \\ \hline 19.5 \end{array}$$

Answer

2. Divide the following

a) $2.4 \div 6$

Solution:

$$\begin{array}{r} 0.4 \\ 6 \overline{) 2.4} \\ \underline{- 0} \\ 2.4 \\ \underline{- 2.4} \\ 0 \end{array}$$

$2.4 \div 6 = 0.4$ Answer

b) $2.8 \div 7$

Solution:

$$\begin{array}{r} 0.4 \\ 7 \overline{) 2.8} \\ \underline{- 2.8} \\ 0 \end{array}$$

$2.8 \div 7 = 0.4$ Answer

c) $5.5 \div 5$

Solution:

$$\begin{array}{r} 1.1 \\ 5 \overline{) 5.5} \\ \underline{- 5} \\ 5 \\ \underline{- 5} \\ 0 \end{array}$$

$5.5 \div 5 = 1.1$ Answer

d) $7.2 \div 8$

Solution:

$$\begin{array}{r} 0.9 \\ 8 \overline{) 7.2} \\ \underline{- 7.2} \\ 0 \end{array}$$

$7.2 \div 8 = 0.9$ Answer

e) $8.4 \div 7$

Solution:

$$\begin{array}{r} 1.2 \\ 7 \overline{) 8.4} \\ \underline{- 7} \\ 14 \\ \underline{- 14} \\ 0 \end{array}$$

$8.4 \div 7 = 1.2$ Answer

f) $1.4 \div 2$

Solution:

$$\begin{array}{r} 0.7 \\ 2 \overline{) 1.4} \\ \underline{- 1.4} \\ 0 \end{array}$$

$1.4 \div 2 = 0.7$ Answer

g) $1.8 \div 6$

Solution:

$$\begin{array}{r} 0.3 \\ 6 \overline{) 1.8} \\ \underline{- 1.8} \\ 0 \end{array}$$

$1.8 \div 6 = 0.3$ Answer

h) $3.6 \div 4$

Solution:

$$\begin{array}{r} 0.9 \\ 4 \overline{) 3.6} \\ \underline{- 3.6} \\ 0 \end{array}$$

$3.6 \div 4 = 0.9$ Answer

3. To stitch an abaya, 8.5 m of cloth is needed. How much cloth is needed to make 7 such abayas?

Solution:

Cloth needed to make one abaya = 8.5 m

Cloth needed to make 7 abayas = 8.5×7
= 59.5 m Answer

So, 59.5 m of cloth is needed to make 7 such abayas.

$$\begin{array}{r} 8.5 \\ \times 7 \\ \hline 59.5 \end{array}$$

4. The total length of 8 wires is 6.4 meters. What is the length of 1 wire?

Solution:

Total length of wires = 6.4 m

Number of wires = 8

Length of one wire = $6.4 \div 8$
= 0.8 meters Answer

$$\begin{array}{r} 0.8 \\ 8 \overline{) 6.4} \\ \underline{- 6.4} \\ 0 \end{array}$$

So, the length of one wire is 0.8 meters.

5. There is 9.6 kg of grain. If it is distributed among 6 people equally, how much grain will each person get?

Solution:

Total quantity of grain = 9.6 kg
Number of people = 6
Each person will get = $9.6 \div 6$
= 1.6 kg Answer

So, each person will get 1.6 kg

$$\begin{array}{r} 1.6 \\ 6 \overline{) 9.6} \\ \underline{- 6} \\ 36 \\ \underline{- 36} \\ 0 \end{array}$$

Learning Check 4.6

1. Round off the following decimal numbers to the nearest whole number.

a) 2.51

Solution:

2.51

= 3 (as tenth place digit is 5)

b) 2.49

Solution:

2.49

= 2 (as tenth place digit is less than 5)

c) 1.34

Solution:

1.34

= 1 (as tenth place digit is less than 5)

d) 0.56

Solution:

0.56

= 1 (as tenth place digit is 5)

e) 5.77

Solution:

5.77

= 6 (as tenth place digit is greater than 5)

f) 9.06

Solution:

9.06

= 9 (as tenth place digit is less than 5)

g) 5.98

Solution:

5.98

= 6 (as tenth place digit is greater than 5)

h) 4.09

Solution:

4.09

= 4 (as tenth place digit is less than 5)

i) 3.23

Solution:

3.23

= 3 (as tenth place digit is less than 5)

j) 19.91

Solution:

19.91

= 20 (as tenth place digit is greater than 5)

Unit Check 4

1. Encircle the correct options.

a) (ii) decimal point

b) (iv) denominator

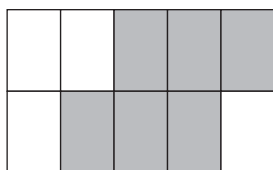
c) (iv) one-thousandth

d) (i) 0.4

e) (iii) 7

2. Write the coloured parts of the following shapes as decimals and also write them in word form.

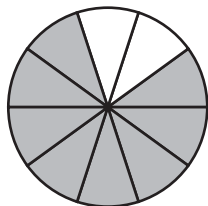
a)



in decimal = $\frac{6}{10} = 0.6$

in word form = zero point six

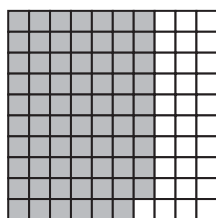
b)



in decimal = $\frac{8}{10} = 0.8$

in word form = zero point eight

c)



in decimal = $\frac{79}{100} = 0.79$

in word form = zero point seven nine.

3. Write the decimal for each of the following.

a) $\frac{3}{10}$

Solution:

$\frac{3}{10}$

= 0.3 Answer

b) $\frac{18}{100}$

Solution:

$\frac{18}{100}$

= 0.18 Answer

c) $\frac{7}{1000}$

Solution:

$\frac{7}{1000}$

= 0.007 Answer

d) 15 tenths

Solution:

$$15 \text{ tenths} = \frac{15}{10}$$

e) 25 thousandths

Solution:

$$25 \text{ thousandths} = \frac{25}{1000}$$

f) 24 hundredths

Solution:

$$24 \text{ hundredths} = \frac{24}{100}$$

4. Write the following decimals in words.

a) 3.78

Answer = 3.78

= three point seven eight

b) 10.45

Answer = 10.45

= ten point four five

c) 0.056

Answer = 0.056

= zero point zero five six

d) 1.504

Answer = 1.504

= one point five zero four

5. Write the following in decimal form.

a) sixteen hundredths

Answer = sixteen hundredths = $\frac{16}{100}$
= 0.16 Answer

b) four point five one

Answer = four point five one
= 4.15 Answer

c) eight hundred and one point six seven one

Answer = eight hundred and one point six seven one
= 801.671 Answer

d) twenty-two thousandths

Answer = twenty-two thousandths = $\frac{22}{1000}$
= 0.022 Answer

6. Colour these shapes to show the correct tenths.



0.6

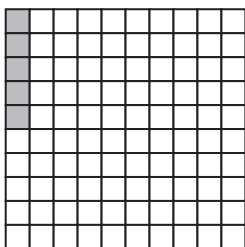


0.1

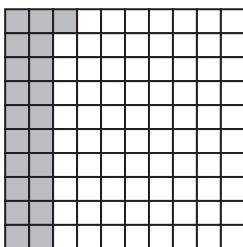


0.9

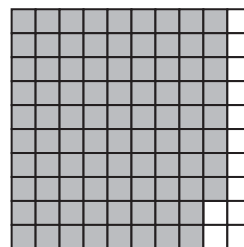
7. Colour these shapes to show the correct hundredths.



0.05



0.22



0.88

8. For 7.901, complete the following. Also write its expanded form and word form.

The digit 7 is in the one place and has a value of $7 \times 1 = 7$

The digit 9 is in the tenths place and has a value of $9 \times \frac{1}{10} = 0.9$

The digit 0 is in the hundredths place and has a value of $0 \times \frac{1}{100} = 0.00$

The digit 1 is in the _____ place and has a value of $1 \times \frac{1}{1000} = 0.001$

Expanded form: $7 + 0.9 + 0.00 + 0.001$

Word form: seven point nine zero one

9. Express the following decimals as fractions.

a) 8.541

Solution:

$$= \frac{8.541}{1000}$$

$$= 8 \frac{541}{1000} \text{ Answer}$$

b) 8.32

Solution:

$$= \frac{832}{100}$$

$$= 8 \frac{8}{25} \text{ Answer}$$

c) 9.502

Solution:

$$= \frac{9.502}{1000} = \frac{4751}{500}$$

$$= 9 \frac{251}{500} \text{ Answer}$$

d) 3.148

Solution:

$$= \frac{3148}{1000} = \frac{787}{250}$$

$$= 3 \frac{37}{250} \text{ Answer}$$

10. Solve the following.

a) $3.25 + 5.45$

Solution:

$$\begin{array}{r} 3 \text{ . } \overset{\textcircled{1}}{2} 5 \\ + 5 \text{ . } 4 5 \\ \hline 8 \text{ . } 7 0 \end{array}$$

b) $28.9 + 15.8$

Solution:

$$\begin{array}{r} \overset{\textcircled{1}}{2} \overset{\textcircled{1}}{8} \text{ . } 9 \\ + 1 5 \text{ . } 8 \\ \hline 4 4 \text{ . } 7 \end{array}$$

c) $6.47 + 2.30$

Solution:

$$\begin{array}{r} 6 \text{ . } 4 7 \\ + 2 \text{ . } 3 0 \\ \hline 8 \text{ . } 7 7 \end{array}$$

d) $78.8 + 25.5$

Solution:

$$\begin{array}{r} 7 8 \text{ . } 8 \\ + 2 5 \text{ . } 5 \\ \hline 1 0 4 \text{ . } 3 \end{array}$$

e) $47.4 - 26.8$

Solution:

$$\begin{array}{r} 4 \overset{6}{\cancel{7}} \text{ . } \overset{\textcircled{1}}{4} \\ - 2 6 \text{ . } 8 \\ \hline 2 0 \text{ . } 6 \end{array}$$

f) $5.45 - 2.29$

Solution:

$$\begin{array}{r} 5 \text{ . } \overset{3}{\cancel{4}} \overset{\textcircled{1}}{5} \\ - 2 \text{ . } 2 9 \\ \hline 3 \text{ . } 1 6 \end{array}$$

11. Solve these.

a) 3.5×100

Solution:

$$\begin{array}{l} 3.5 \overset{\textcircled{1}}{\curvearrowright} \overset{\textcircled{2}}{\curvearrowright} \times 100 \\ = 350.0 \\ \text{or } 350 \text{ Answer} \end{array}$$

b) 0.7×10

Solution:

$$\begin{array}{l} 0.7 \overset{\textcircled{1}}{\curvearrowright} \times 10 \\ = 7.0 \\ \text{or } 7 \text{ Answer} \end{array}$$

c) 2.1×1000

Solution:

$$\begin{array}{l} 2.1 \overset{\textcircled{1}}{\curvearrowright} \overset{\textcircled{2}}{\curvearrowright} \overset{\textcircled{3}}{\curvearrowright} \times 1000 \\ = 2100.0 \\ \text{or } 2100 \text{ Answer} \end{array}$$

d) 5.6×7

Solution:

$$\begin{array}{r} \overset{\textcircled{4}}{5} \text{ . } 6 \\ \times \quad 7 \\ \hline 3 9 \text{ . } 2 \end{array} \text{ Answer}$$

e) $4.8 \div 8$

Solution:

$$\begin{array}{r} 0.6 \\ 8 \overline{) 4.8} \\ \underline{- 4.8} \\ 0 \end{array}$$

so, $4.8 \div 8 = 0.6$ Answer

f) $8.1 \div 9$

Solution:

$$\begin{array}{r} 0.9 \\ 9 \overline{) 8.1} \\ \underline{- 8.1} \\ 0 \end{array}$$

so, $8.1 \div 9 = 0.9$ Answer

g) $3.6 \div 3$

Solution:

$$\begin{array}{r} 1.2 \\ 3 \overline{) 3.6} \\ \underline{- 3.6} \\ 0 \end{array}$$

so, $3.6 \div 3 = 1.2$ Answer

h) $6.4 \div 4$

Solution:

$$\begin{array}{r} 1.6 \\ 4 \overline{) 6.4} \\ \underline{- 4.4} \\ 2.0 \\ \underline{- 2.0} \\ 0 \end{array}$$

so, $6.4 \div 4 = 1.6$ Answer

12. The capacity of a glass is 1.25 liters and the capacity of a jug is 2.75 liters. Find:

a) the total capacity of both.

Solution:

$$\begin{array}{r} \text{The capacity of glass} = 1.25 \\ \text{The capacity of jug} = 2.75 \\ \hline \text{Total capacity of both} = 4.00 \end{array}$$

So the total capacity of glass and jug is 4 litres.

b) the difference in their capacities.

Solution:

$$\begin{array}{r} \text{The capacity of jug} = 2.75 \\ \text{The capacity of glass} = 1.25 \\ \hline \text{Difference in their capacity} = 1.50 \end{array}$$

The difference in the capacities of glass and jug is 1.5 litres.

13. The mass of a pack of rice is 2.5 kg. Find the mass of 8 such packs.

Solution:

Mass of a pack of rice = 2.5

Number a packs = 8

Mass of 8 packs = 2.5×8

$$\begin{array}{r} 2.5 \\ \times 8 \\ \hline 20.0 \end{array}$$

Mass of 8 packs of rice is 20 kg.

14. 7.2 liters of ice cream needs to be distributed among 9 persons. How much will each person get?

Solution:

Total quantity of icecream = 7.2 litres

Number of persons = 9

Each person will get = $7.2 \div 9$

$$\begin{array}{r} 0.8 \\ 9 \overline{) 7.2} \\ \underline{- 7.2} \\ 0 \end{array}$$

So each person will get 0.8 litres of ice cream.

15. Round off the following to the nearest whole number.

a) 5.92

answer:

5.92
= 6

b) 9.01

answer:

9.01
= 9

c) 4.57

answer:

4.57
= 5

Unit 5: Measurement

Learning Check 5.1

1. Write the lengths of the given objects.

- a) The length of the bench is 3 m.
b) The length of the envelope is 13 cm.

2. Write the most appropriate units to measure these lengths.

- | | |
|--|------------------|
| a) Distance between your house to the masjid | kilometers (km) |
| b) Length of your bed | meters (m) |
| c) Length of your Maths book | centimeters (cm) |
| d) Length of your lunch box | centimeters (cm) |
| e) Distance of one city from another | kilometers (km) |
| f) Length of your classroom | meters (m) |
| g) Length of the bench in the park | meters (m) |
| h) Length of your desk | meters (m) |

Learning Check 5.2

1. Convert the following into meters.

a) 12 km

Solution:

12 km

$$= 12 \times 1000 \text{ m}$$

$$= 12000 \text{ m}$$

d) 98 km

Solution:

98 km

$$= 98 \times 1000 \text{ m}$$

$$= 98000 \text{ m}$$

b) 20 km

Solution:

20 km

$$= 20 \times 1000 \text{ m}$$

$$= 20000 \text{ m}$$

e) 19 km 92 m

Solution:

19 km 92 m

$$= 19 \times 1000 \text{ m} + 92 \text{ m}$$

$$= 19000 \text{ m} + 92 \text{ m}$$

$$= 19092 \text{ m}$$

c) 43 km

Solution:

43 km

$$= 43 \times 1000 \text{ m}$$

$$= 43000 \text{ m}$$

f) 6 km 229 m

Solution:

6 km 229 m

$$= 6 \times 1000 \text{ m} + 229 \text{ m}$$

$$= 6000 \text{ m} + 229 \text{ m}$$

$$= 6229 \text{ m}$$

g) 28 km 560 m

Solution:

28 km 560 m

$$= 28 \times 1000 \text{ m} + 560 \text{ m}$$

$$= 28000 \text{ m} + 560 \text{ m}$$

$$= 28560 \text{ m}$$

h) 76km 634 m

Solution:

76 km 634 m

$$= 76 \times 1000 \text{ m} + 634 \text{ m}$$

$$= 76000 \text{ m} + 634 \text{ m}$$

$$= 76634 \text{ m}$$

2. Convert the following into centimeters.

a) 48 m

Solution:

48 m

$$= 48 \times 100 \text{ cm}$$

$$= 4800 \text{ cm}$$

b) 71 m

Solution:

71 m

$$= 71 \times 100 \text{ m}$$

$$= 7100 \text{ cm}$$

c) 30

Solution:

30 m

$$= 30 \text{ m} \times 100$$

$$= 3000 \text{ cm}$$

d) 26 m 10 cm

Solution:

26 m 10 cm

$$= 26 \times 100 \text{ cm} + 10 \text{ cm}$$

$$= 2600 \text{ cm} + 10 \text{ cm}$$

$$= 2610 \text{ cm}$$

e) 198 m 44 cm

Solution:

198 m 44 cm

$$= 198 \times 100 \text{ cm} + 44 \text{ cm}$$

$$= 19800 \text{ cm} + 44 \text{ cm}$$

$$= 19844 \text{ cm}$$

f) 21 m 23 cm

Solution:

21 m 23 cm

$$= 21 \times 100 \text{ cm} + 23 \text{ cm}$$

$$= 2100 \text{ cm} + 23 \text{ cm}$$

$$= 2123 \text{ cm}$$

g) 30 m 20 cm

Solution:

30 m 20 cm

$$= 30 \times 100 \text{ cm} + 20 \text{ cm}$$

$$= 3000 \text{ cm} + 20 \text{ cm}$$

$$= 3020 \text{ cm}$$

h) 67 m 56 cm

Solution:

67 m 56 cm

$$= 67 \times 100 \text{ cm} + 56 \text{ cm}$$

$$= 6700 \text{ cm} + 56 \text{ cm}$$

$$= 6756 \text{ cm}$$

3. Convert the following into millimeters.

a) 10 cm

Solution:

10 cm

$$= 10 \times 10 \text{ mm}$$

$$= 100 \text{ mm}$$

b) 49 cm

Solution:

49 cm

$$= 49 \times 10$$

$$= 490 \text{ mm}$$

c) 56 cm

Solution:

56 cm

$$= 56 \times 10 \text{ mm}$$

$$= 560 \text{ mm}$$

d) 60 cm

Solution:

$$\begin{aligned} &60 \text{ cm} \\ &= 60 \times 10 \\ &= 600 \text{ mm} \end{aligned}$$

e) 21 cm 6 mm

Solution:

$$\begin{aligned} &21 \text{ cm } 6 \text{ mm} \\ &= 21 \times 10 \text{ mm} + 6 \text{ mm} \\ &= 210 \text{ mm} + 6 \text{ mm} \\ &= 216 \text{ mm} \end{aligned}$$

f) 23 cm 2 mm

Solution:

$$\begin{aligned} &23 \text{ cm } 2 \text{ mm} \\ &= 23 \times 10 \text{ mm} + 2 \text{ mm} \\ &= 230 \text{ mm} + 2 \text{ mm} \\ &= 232 \text{ mm} \end{aligned}$$

g) 59 cm 3 mm

Solution:

$$\begin{aligned} &59 \text{ cm } 3 \text{ mm} \\ &= 59 \times 10 \text{ mm} + 3 \text{ mm} \\ &= 590 \text{ mm} + 3 \text{ mm} \\ &= 593 \text{ mm} \end{aligned}$$

h) 78 cm 8 mm

Solution:

$$\begin{aligned} &78 \text{ cm } 8 \text{ mm} \\ &= 78 \times 10 \text{ mm} + 8 \text{ mm} \\ &= 780 \text{ mm} + 8 \text{ mm} \\ &= 788 \text{ mm} \end{aligned}$$

Learning Check 5.3

1. Solve the following.

a)

km	m
^① 1	^① 883
+ 8	556
10	439

b)

km	m
^① 52	^① 501
+ 14	909
67	410

c)

km	m
⁰ 71	¹⁰⁰⁰ 500
- 10	800
60	700

d)

km	m
⁹⁷ 98	¹⁰⁰⁰ 404
- 21	963
76	441

e)

m	cm
⁸⁰ 81	¹⁰⁰ 12
- 50	82
30	30

f)

m	cm
²⁰ 21	¹⁰⁰ 14
- 20	98
0	16

g)

m	cm
^① 13	^① 54
+ 9	54
23	08

h)

cm	mm
^① 59	^① 1
+ 15	9
75	0

i)

cm	mm
⁴ 45	¹⁰ 2
- 21	5
23	7

2. Find the sum of the following.

a) $12 \text{ km } 34 \text{ m} + 10 \text{ km } 999 \text{ m}$

Solution:

$$\begin{array}{r} \textcircled{1} \qquad \textcircled{1} \textcircled{1} \\ 12 \text{ km } \quad 034 \text{ m} \\ + 10 \text{ km } \quad 999 \text{ m} \\ \hline 23 \text{ km } \quad 033 \text{ m} \end{array}$$

c) $4 \text{ m } 44 \text{ cm} + 5 \text{ m } 67 \text{ cm}$

Solution:

$$\begin{array}{r} \textcircled{1} \qquad \textcircled{1} \\ 4 \text{ m } \quad 44 \text{ cm} \\ + 5 \text{ m } \quad 67 \text{ cm} \\ \hline 10 \text{ m } \quad 11 \text{ cm} \end{array}$$

b) $23 \text{ m } 34 \text{ cm} + 84 \text{ m } 81 \text{ cm}$

Solution:

$$\begin{array}{r} \textcircled{1} \\ 23 \text{ m } \quad 34 \text{ cm} \\ + 84 \text{ m } \quad 81 \text{ cm} \\ \hline 108 \text{ m } \quad 15 \text{ cm} \end{array}$$

d) $17 \text{ cm } 8 \text{ mm} + 32 \text{ cm } 4 \text{ mm}$

Solution:

$$\begin{array}{r} \textcircled{1} \\ 17 \text{ cm } \quad 8 \text{ mm} \\ + 32 \text{ cm } \quad 4 \text{ mm} \\ \hline 50 \text{ cm } \quad 2 \text{ mm} \end{array}$$

3. Find the difference of the following.

a) $21 \text{ km } 43 \text{ m}$ and $20 \text{ km } 34 \text{ m}$

$$\begin{array}{r} 21 \text{ km } \quad 43 \text{ m} \\ - 20 \text{ km } \quad 34 \text{ m} \\ \hline 1 \text{ km } \quad 9 \text{ m} \end{array}$$

b) $32 \text{ m } 43 \text{ cm}$ and $54 \text{ m } 2 \text{ cm}$

$$\begin{array}{r} \textcircled{3} \qquad \textcircled{100} \\ 5\cancel{4} \text{ m } \quad 02 \text{ cm} \\ - 32 \text{ m } \quad 43 \text{ cm} \\ \hline 21 \text{ m } \quad 59 \text{ cm} \end{array}$$

c) $31 \text{ m } 45 \text{ cm}$ and $86 \text{ m } 24 \text{ cm}$

$$\begin{array}{r} \textcircled{5} \qquad \textcircled{100} \\ 8\cancel{6} \text{ m } \quad 24 \text{ cm} \\ - 31 \text{ m } \quad 45 \text{ cm} \\ \hline 54 \text{ m } \quad 79 \text{ cm} \end{array}$$

d) $9 \text{ cm } 2 \text{ mm}$ and $24 \text{ cm } 4 \text{ mm}$

$$\begin{array}{r} \textcircled{1} \textcircled{2} \textcircled{4} \qquad \textcircled{4} \\ 1\cancel{2}\cancel{4} \text{ cm } \quad 4 \text{ mm} \\ - 09 \text{ cm } \quad 2 \text{ mm} \\ \hline 15 \text{ cm } \quad 2 \text{ mm} \end{array}$$

4. The distance from the school to the market is 5 km 678 m and the distance from the market to the masjid is 3 km 387 m. Find the total distance from the school to the masjid. Convert the answer into meters.

Solution:

Distance from school to market = $\textcircled{1} \quad 5 \text{ km } \quad \textcircled{1} \textcircled{1} \quad 678 \text{ m}$

Distance from market to masjid = $+ \quad 3 \text{ km } \quad 387 \text{ m}$

Distance from school to masjid = $\quad 9 \text{ km } \quad 065 \text{ m}$

So, distance from school to masjid is 9 km 65 m.

In meters: $9 \times 1000 + 65 \text{ m} = 9000 \text{ m} + 65 \text{ m} = 9065 \text{ m}$

So, the distance from school to masjid in meters is 9065 meters.

5. A train covered a distance of 154 km 432 m from city A to city B and 201 km 722 m from city B to city C. Find the total distance covered by the train. Convert the answer into meters.

Solution:

$$\begin{array}{rcl}
 \text{Distance covered from city A to city B} & = & 154^{\textcircled{1}} \text{ km } 432 \text{ m} \\
 \text{Distance covered from city B to city C} & = + & 201 \text{ km } 722 \text{ m} \\
 \hline
 \text{Total distance covered} & = & 356 \text{ km } 154 \text{ m}
 \end{array}$$

So, total distance covered by the train is 356 km 154 m.

In meters: $(356 \times 1000 + 154) \text{ m} = 356000 \text{ m} + 154 \text{ m} = 356154 \text{ m}$.

6. Fahad walked 824 m 35 cm and Zara walked 767 m 69 cm. How much more distance was covered by Fahad than Zara? Convert the answer into centimeters.

Solution:

$$\begin{array}{rcl}
 \text{Fahad walked} & = & \overset{7}{8} \overset{1}{2} \overset{3}{4} \text{ m } \overset{100}{35} \text{ cm} \\
 \text{Zara walked} & = - & 767 \text{ m } 69 \text{ cm} \\
 \hline
 \text{Difference} & = & 056 \text{ m } 66 \text{ cm}
 \end{array}$$

So, Fahad covered 56 m 66 cm more than Zara

In cm: $(56 \times 100 + 66) \text{ cm} = 5600 \text{ cm} + 66 \text{ cm} = 5666 \text{ cm}$.

7. Madiha has 5 m 23 cm of cloth to stitch two scarves. She used 3 m 55 cm piece of cloth to stitch one scarf. How much cloth was left? Convert the answer into centimeters.

Solution:

$$\begin{array}{rcl}
 \text{Total length of cloth Madiha has} & = & \overset{4}{5} \overset{100}{23} \text{ cm} \\
 \text{Length used for one scarf} & = - & 3 \text{ m } 55 \text{ cm} \\
 \hline
 \text{Cloth left} & = & 1 \text{ m } 68 \text{ cm}
 \end{array}$$

So, 1 m 68 cm of cloth was left.

In cm: $(1 \times 100 + 68) \text{ cm} = 100 \text{ cm} + 68 \text{ cm} = 168 \text{ cm}$.

Learning Check 5.4

1. Write the mass of these objects.

a) 2.5 kg

b) 400 g

c) 2 g

2. Colour the most appropriate unit to measure the mass of the following objects.

a) g

b) kg

c) g

d) mg

e) g

f) mg

g) g

h) kg

i) g

Learning Check 5.5

1. Convert the following into grams.

a) 45 kg

Solution:

45 kg

$$= (45 \times 1000) \text{ g}$$

$$= 45000 \text{ g}$$

b) 62 kg

Solution:

62 kg

$$= (62 \times 1000) \text{ g}$$

$$= 62000 \text{ g}$$

c) 76 kg

Solution:

76 kg

$$= (76 \times 1000) \text{ g}$$

$$= 76000 \text{ g}$$

d) 89 kg

Solution:

89 kg

$$= (89 \times 1000) \text{ g}$$

$$= 89000 \text{ g}$$

e) 23 kg 42 g

Solution:

23 kg 42 g

$$= (23 \times 1000) \text{ g} + 42 \text{ g}$$

$$= 23000 \text{ g} + 42 \text{ g}$$

$$= 23042 \text{ g}$$

f) 67 kg 23 g

Solution:

67 kg 23 g

$$= (67 \times 1000) \text{ g} + 23 \text{ g}$$

$$= 67000 \text{ g} + 23 \text{ g}$$

$$= 67023 \text{ g}$$

g) 59 kg 34 g

Solution:

59 kg 34 g

$$= (59 \times 1000) \text{ g} + 34 \text{ g}$$

$$= 59000 \text{ g} + 34 \text{ g}$$

$$= 59034 \text{ g}$$

h) 99 kg 21 g

Solution:

99 kg 21 g

$$= (99 \times 1000) \text{ g} + 21 \text{ g}$$

$$= 99000 \text{ g} + 21 \text{ g}$$

$$= 99021 \text{ g}$$

2. Convert the following into milligrams.

a) 73 g

Solution:

73 g

$$= (73 \times 1000) \text{ mg}$$

$$= 73000 \text{ mg}$$

d) 5276 g

Solution:

5276 g

$$= (5276 \times 1000) \text{ mg}$$

$$= 5276000 \text{ mg}$$

b) 84 g

Solution:

84 g

$$= (84 \times 1000) \text{ mg}$$

$$= 84000 \text{ mg}$$

e) 24 g 87 mg

Solution:

24 g 87 mg

$$= (24 \times 1000) \text{ mg}$$

$$+ 87 \text{ mg}$$

$$= 24000 \text{ mg} + 87 \text{ mg}$$

$$= 24087 \text{ mg}$$

c) 44 g

Solution:

44 g

$$= (44 \times 1000) \text{ mg}$$

$$= 44000 \text{ mg}$$

f) 526 g 100 mg

Solution:

526 g 100 mg

$$= (526 \times 1000) \text{ mg}$$

$$+ 100 \text{ mg}$$

$$= 526000 \text{ mg} + 100 \text{ mg}$$

$$= 526100 \text{ mg}$$

g) 49 g 876 mg

Solution:

49 g 876 mg

$$= (49 \times 1000) \text{ mg}$$

$$+ 876 \text{ mg}$$

$$= 49000 \text{ mg} + 876 \text{ mg}$$

$$= 49876 \text{ mg}$$

Learning Check 5.6

1. Solve the following.

a)

kg	g
^① 5	821
+	8 516
14	337

b)

kg	g
32 ^①	405
+	41 703
74	108

c)

g	mg
⁷ 84 ³	¹⁰⁰⁰ 200
-	14 700
69	500

d)

kg	g
⁸ 78	¹⁰⁰⁰ 500
-	21 600
57	900

e	<table> <tr><th>g</th><th>mg</th></tr> <tr><td>89^①</td><td>74</td></tr> <tr><td>+ 10</td><td>72</td></tr> <tr><td colspan="2"> </td></tr> <tr><td>100</td><td>46</td></tr> </table>	g	mg	89 ^①	74	+ 10	72			100	46
g	mg										
89 ^①	74										
+ 10	72										
100	46										

f	<table> <tr><th>kg</th><th>g</th></tr> <tr><td>81^①</td><td>412^{①①}</td></tr> <tr><td>+ 50</td><td>598</td></tr> <tr><td colspan="2"> </td></tr> <tr><td>132</td><td>010</td></tr> </table>	kg	g	81 ^①	412 ^{①①}	+ 50	598			132	010
kg	g										
81 ^①	412 ^{①①}										
+ 50	598										
132	010										

g	<table> <tr><th>kg</th><th>g</th></tr> <tr><td>13²</td><td>098¹⁰⁰⁰</td></tr> <tr><td>- 11</td><td>101</td></tr> <tr><td colspan="2"> </td></tr> <tr><td>1</td><td>997</td></tr> </table>	kg	g	13 ²	098 ¹⁰⁰⁰	- 11	101			1	997
kg	g										
13 ²	098 ¹⁰⁰⁰										
- 11	101										
1	997										

h	<table> <tr><th>g</th><th>mg</th></tr> <tr><td>43</td><td>024^{8①}</td></tr> <tr><td>- 14</td><td>162</td></tr> <tr><td colspan="2"> </td></tr> <tr><td>29</td><td>762</td></tr> </table>	g	mg	43	024 ^{8①}	- 14	162			29	762
g	mg										
43	024 ^{8①}										
- 14	162										
29	762										

i	<table> <tr><th>kg</th><th>g</th></tr> <tr><td>47^①</td><td>831^①</td></tr> <tr><td>+ 26</td><td>176</td></tr> <tr><td colspan="2"> </td></tr> <tr><td>74</td><td>007</td></tr> </table>	kg	g	47 ^①	831 ^①	+ 26	176			74	007
kg	g										
47 ^①	831 ^①										
+ 26	176										
74	007										

j	<table> <tr><th>g</th><th>mg</th></tr> <tr><td>59⁸</td><td>125¹⁰⁰⁰</td></tr> <tr><td>- 15</td><td>835</td></tr> <tr><td colspan="2"> </td></tr> <tr><td>43</td><td>290</td></tr> </table>	g	mg	59 ⁸	125 ¹⁰⁰⁰	- 15	835			43	290
g	mg										
59 ⁸	125 ¹⁰⁰⁰										
- 15	835										
43	290										

2. Find the sum of the following.

a) 12 kg 398 g + 10 kg 674 g

Solution:

12	kg	398	g
+ 10	kg	674	g
13	kg	072	g

b) 23 kg 340 g + 44 m 909 g

Solution:

23	kg	340	g
+ 44	kg	909	g
68	kg	249	g

c) 4 kg 442 g + 5 kg 762 g

Solution:

4	kg	442	g
+ 5	kg	762	g
10	kg	204	g

d) 23 kg 340 g + 44 m 909 g

Solution:

7	g	895	mg
+ 1	g	414	mg
9	g	309	mg

3. Find the difference of the following.

a) 31 kg 33 g from 45 kg 24 g

Solution:

45	kg	24	g
- 31	kg	33	g
13	kg	99	g

b) 42 kg 781 g from 73 kg 563 g

Solution:

73	kg	563	g
- 42	kg	781	g
30	kg	782	g

c) 15 kg 465 g from 76 kg 244 g

Solution:

$$\begin{array}{r} \overset{5}{7}\overset{1000}{6} \text{ kg } 244 \text{ g} \\ - 15 \text{ kg } 465 \text{ g} \\ \hline 60 \text{ kg } 779 \text{ g} \end{array}$$

d) 4 g 788 mg from 9 g 506 mg

Solution:

$$\begin{array}{r} \overset{8}{9} \text{ g } \overset{1000}{5} 06 \text{ mg} \\ - 4 \text{ g } 788 \text{ mg} \\ \hline 4 \text{ g } 718 \text{ mg} \end{array}$$

4. The mass of a bag of mangoes is 34 kg 12 g and the mass of a bag of apples is 23 kg 98 g. Find the total mass of both bags. Convert the answer into grams.

Solution:

Mass of bag of mangoes	=	34 kg	12 g
Mass of bag of apples	= +	23 kg	98 g
Total mass of bags	=	57 kg	110 g

So, the mass of both bags are 58 kg 110 g

$$\begin{aligned} \text{In grams} &= 57 \text{ kg } 110 \text{ g} \\ &= (57 \times 1000) \text{ g} + 110 \text{ g} \\ &= 57000 \text{ g} + 110 \text{ g} = 57110 \text{ g} \end{aligned}$$

5. A shopkeeper has 45 kg 55 g of sugar and 19 kg 76 g of rice in stock. Find the total stock of sugar and rice he has. Convert the answer into grams.

Solution:

Quantity of sugar	=	^① 45 kg	^① 55 g
Quantity of rice	= +	19 kg	76 g
Total stock of sugar and rice	=	64 kg	131 g

So, he has 64 kg 131 g of stock of sugar and rice.

$$\begin{aligned} \text{In grams} &= 64 \text{ kg } 131 \text{ g} \\ &= (64 \times 1000) \text{ g} + 131 \text{ g} \\ &= 64000 \text{ g} + 131 \text{ g} = 64131 \text{ g} \end{aligned}$$

6. The mass of a pack of cookies is 250 g 25 mg and the mass of a pack of chocolates is 415 g 115 mg. Find the difference between their masses. Convert the answer into milligrams.

Solution:

$$\begin{array}{rcl}
 \text{Mass of pack of chocolate} & = & 415 \text{ g } 115 \text{ mg} \\
 \text{Mass of pack of cookies} & = - & 250 \text{ g } 25 \text{ mg} \\
 \hline
 \text{Total stock of sugar and rice} & = & 165 \text{ g } 90 \text{ mg}
 \end{array}$$

So, the difference between their masses is 165g 90 mg.

$$\begin{aligned}
 \text{In miligrams} &= 165 \text{ g } 90 \text{ mg} \\
 &= (165 \times 1000) \text{ mg} + 90 \text{ mg} \\
 &= 165000 \text{ g} + 90 \text{ g} = 165090 \text{ mg}
 \end{aligned}$$

7. Mother bought 16 kg 450 g of flour. 8 kg 940 g of the flour has been used. What is the mass of flour left? Convert the answer into grams.

Solution:

$$\begin{array}{rcl}
 \text{Total mass of flour} & = & \overset{15}{\cancel{16}} \text{ kg } 450 \text{ g} \\
 \text{Mass of flour used} & = - & 8 \text{ kg } 940 \text{ g} \\
 \hline
 \text{Mass of flour left} & = & 7 \text{ kg } 510 \text{ g}
 \end{array}$$

So, 7 kg 510 g of flour is left.

$$\begin{aligned}
 \text{In grams} &= 7 \text{ kg } 510 \text{ g} \\
 &= (7 \times 1000) \text{ g} + 510 \text{ g} = 7000 \text{ g} + 510 \text{ g} = 7510 \text{ g}
 \end{aligned}$$

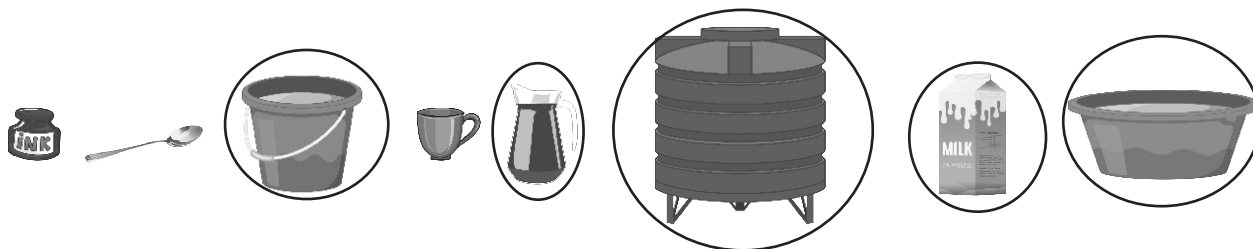
Learning Check 5.7

1. Write the capacity of the following containers.

a) 400 millilitres or 400 ml. b) 10 litres or 10 l.

b) 1 l 100 ml.

2. Circle the objects that have a capacity measured in liters.



Learning Check 5.8

1. Convert these capacities into millimeters.

a) 4 ℓ

Solution:

$$\begin{aligned} &4 \text{ ℓ} \\ &= (4 \times 1000) \text{ ml} \\ &= 4000 \text{ ml} \end{aligned}$$

b) 13 ℓ

Solution:

$$\begin{aligned} &13 \text{ ℓ} \\ &= (13 \times 1000) \text{ ml} \\ &= 13000 \text{ ml} \end{aligned}$$

c) 46 ℓ

Solution:

$$\begin{aligned} &46 \text{ ℓ} \\ &= (46 \times 1000) \text{ ml} \\ &= 46000 \text{ ml} \end{aligned}$$

d) 76 ℓ

Solution:

$$\begin{aligned} &76 \text{ ℓ} \\ &= (76 \times 1000) \text{ ml} \\ &= 76000 \text{ ml} \end{aligned}$$

e) 9 ℓ 15 ml

Solution:

$$\begin{aligned} &9 \text{ ℓ } 15 \text{ ml} \\ &= (9 \times 1000) \text{ ml} + 15 \text{ ml} \\ &= 9000 \text{ ml} + 15 \text{ ml} \\ &= 9015 \text{ ml} \end{aligned}$$

f) 22 ℓ 456 ml

Solution:

$$\begin{aligned} &22 \text{ ℓ } 456 \text{ ml} \\ &= (22 \times 1000) \text{ ml} + 456 \text{ ml} \\ &= 22000 \text{ ml} + 456 \text{ ml} \\ &= 22456 \text{ ml} \end{aligned}$$

g) 3 ℓ 6 ml

Solution:

$$\begin{aligned} &3 \text{ ℓ } 6 \text{ ml} \\ &= (3 \times 1000) \text{ ml} + 6 \text{ ml} \\ &= 3000 \text{ ml} + 6 \text{ ml} \\ &= 3006 \text{ ml} \end{aligned}$$

h) 56 ℓ 23 ml

Solution:

$$\begin{aligned} &56 \text{ ℓ } 23 \text{ ml} \\ &= (56 \times 1000) \text{ ml} + 23 \text{ ml} \\ &= 56000 \text{ ml} + 23 \text{ ml} \\ &= 56023 \text{ ml} \end{aligned}$$

Learning Check 5.9

1. Solve the following.

a

	ℓ	ml
	5	456
+	8	842
	14	298

b

	ℓ	ml
	45	367
+	41	721
	87	088

c

	ℓ	ml
	56	350
-	42	420
	19	930

d)

ℓ	ml
4 9	¹⁰⁰⁰ 161
- 50	284
44	877

e)

ℓ	ml
7 9	¹⁰⁰⁰ 777
- 90	999
07	778

f)

ℓ	ml
7 7	¹⁰⁰⁰ 484
- 61	852
16	632

2. Find the sum of the following.

a) $143 \ell 34 \text{ ml} + 10 \ell 93 \text{ ml}$

①

143 ℓ	34 ml
+ 10 ℓ	93 ml
153 ℓ	127 ml

b) $12 \ell 849 \text{ ml} + 44 \ell 236 \text{ ml}$

①

12 ℓ	849 ml
+ 44 ℓ	236 ml
57 ℓ	085 ml

c) $4 \ell 442 \text{ ml} + 5 \ell 762 \text{ ml}$

①

4 ℓ	442 ml
+ 5 ℓ	762 ml
10 ℓ	204 ml

d) $7 \ell 865 \text{ ml} + 10 \ell 564 \text{ ml}$

①

7 ℓ	865 ml
+ 10 ℓ	564 ml
18 ℓ	429 ml

3. Find the difference of the following.

a) $31 \ell 389 \text{ ml}$ from $45 \ell 204 \text{ ml}$

ℓ	ml
4 5	¹⁰⁰⁰ 204
- 31	389
13	815

b) $42 \ell 563 \text{ ml}$ from $73 \ell 175 \text{ ml}$

ℓ	ml
7 3	¹⁰⁰⁰ 175
- 42	563
30	612

c) $45 \ell 978 \text{ ml}$ from $86 \ell 789 \text{ ml}$

ℓ	ml
8 6	¹⁰⁰⁰ 789
- 45	978
40	811

d) $4 \ell 677 \text{ ml}$ from $9 \ell 344 \text{ ml}$

ℓ	ml
9 3	¹⁰⁰⁰ 344
- 4	677
4	667

4. A kerosine oil container truck has 284 ℓ 60 ml of oil. 23 ℓ 98 ml of oil spilled due to a minor accident on the highway. How much oil is left in the container truck? Convert the answer into liters.

Solution:

$$\begin{array}{rcl}
 \text{Oil in the truck} & = & \overset{283}{\cancel{284}} \ell \quad \overset{1000}{60} \text{ ml} \\
 \text{Oil spilled on highway} & = & - \quad 23 \ell \quad 98 \text{ ml} \\
 \hline
 \text{Oil left} & = & 260 \ell \quad 962 \text{ ml}
 \end{array}$$

So, 260 ℓ 962 ml of oil is left in the container truck.

In litres: 260 ℓ 962 ml

$$= 260 \ell + \frac{962}{1000} \ell$$

To convert ml into ℓ, we divide by 1000.

$$= 260 \ell + 0.962 \ell = 260.962 \ell$$

5. A bucket holds 24 ℓ 124 ml of water and a tub holds 39 ℓ 899 ml of water. Find their capacity altogether in milliliters.

Solution:

$$\begin{array}{rcl}
 \text{Bucket holds water} & = & \overset{①}{24} \ell \quad \overset{①}{124} \text{ ml} \\
 \text{Tub holds water} & = & + \quad 39 \ell \quad 899 \text{ ml} \\
 \hline
 \text{Capacity of both} & = & 64 \ell \quad 023 \text{ ml}
 \end{array}$$

So, the capacity of bucket and tub altogether are 64 ℓ 23 ml.

In millilitres: 64 ℓ 23 ml

$$= (64 \times 1000) \text{ ml} + 23 \text{ ml}$$

$$= 64000 \text{ ml} + 23 \text{ ml} = 64023 \text{ ml}$$

6. A petrol pump sold 405 ℓ 560 ml of petrol on Monday and 134 ℓ 450 ml of petrol on Tuesday. Find the total amount of petrol sold in both days. Convert the answer into liters.

Solution:

$$\begin{array}{rcl}
 \text{Petrol sold on Monday} & = & \overset{①}{405} \ell \quad \overset{①}{560} \text{ ml} \\
 \text{Petrol sold on Tuesday} & = & + \quad 134 \ell \quad 450 \text{ ml} \\
 \hline
 \text{Petrol sold both days} & = & 540 \ell \quad 010 \text{ ml}
 \end{array}$$

So, 540 ℓ 110 ml of petrol was sold on both days.

In litres: $540\text{ l } 10\text{ ml}$

$$= 540\text{ l} + \frac{10}{1000}\text{ l}$$

To convert ml into l, we divide by 1000.

$$= 540\text{ l} + 0.010\text{ l} = 540.010\text{ l}$$

7. After serving $12\text{ l } 450\text{ ml}$ of ice cream to guests, $6\text{ l } 380\text{ ml}$ of ice cream was left. What was the total volume (in milliliters) of ice cream before serving?

Solution:

Ice cream served to guests	=	$12\text{ l } 450\text{ ml}$
Ice cream left after before serving	= +	$6\text{ l } 380\text{ ml}$
Total volume of ice cream before serving	=	$18\text{ l } 830\text{ ml}$

So, $18\text{ l } 830\text{ ml}$ was the volume of ice cream before serving to guests.

In millilitres: $18\text{ l } 830\text{ ml}$

$$= (18 \times 1000)\text{ ml} + 830\text{ ml}$$

$$= 18000\text{ ml} + 830\text{ ml} = 18830\text{ ml}$$

Unit Check 5.1

1. Encircle the correct options.

a) (iii) 1000 b) (iii) 1000 c) (iii) 1000 d) (ii) 100 e) (i) 10

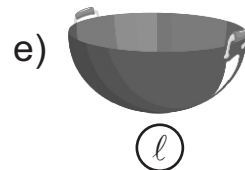
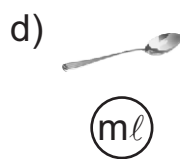
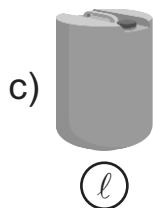
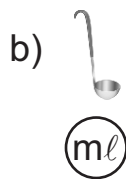
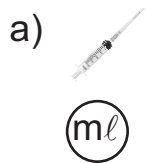
2. Tick (✓) the correct unit to measure the following lengths.

a) (km) ✓ b) (m) ✓ c) (mm) ✓ d) (m) ✓

3. Tick (✓) the most appropriate unit to weigh these objects.

a) (kg) b) (g) c) (mg) d) (g)
e) (kg) f) (mg)

4. Which unit (l or ml) will be used to measure the volume of given objects?



5. Find the sum of the following.

a) 6 km 908 m and 2 km 100 m

Solution:

$$\begin{array}{r} \text{km} \quad \text{m} \\ \textcircled{1}6 \quad 908 \\ + 2 \quad 100 \\ \hline 9 \quad 008 \end{array}$$

c) 4 kg 345 g and 7 kg 725 g

Solution:

$$\begin{array}{r} \text{kg} \quad \text{g} \\ \textcircled{1}4 \quad 345 \\ + 7 \quad 725 \\ \hline 12 \quad 070 \end{array}$$

e) 67 l 73 ml and 43 l 82 ml

Solution:

$$\begin{array}{r} \text{l} \quad \text{ml} \\ 67 \quad 73 \\ + 43 \quad 82 \\ \hline 110 \quad 155 \end{array}$$

6. Find the difference of the following.

a) 66 km 348 m from 98 km 127 m

Solution

$$\begin{array}{r} \text{km} \quad \text{m} \\ \textcircled{98} \quad \textcircled{127} \\ - 66 \quad 348 \\ \hline 31 \quad 779 \end{array}$$

c) 7 kg 408 g from 9 kg 302 g

Solution

$$\begin{array}{r} \text{kg} \quad \text{g} \\ \textcircled{9} \quad \textcircled{302} \\ - 7 \quad 408 \\ \hline 7 \quad 894 \end{array}$$

e) 48 l 609 ml from 68 l 510 ml

Solution

$$\begin{array}{r} \text{l} \quad \text{ml} \\ \textcircled{68} \quad \textcircled{510} \\ - 48 \quad 609 \\ \hline 19 \quad 901 \end{array}$$

b) 54 m 12 cm and 24 m 96 cm

Solution:

$$\begin{array}{r} \text{m} \quad \text{cm} \\ \textcircled{54} \quad 12 \\ + 24 \quad 96 \\ \hline 79 \quad 08 \end{array}$$

d) 34 kg 654 g and 234 kg 524 g

Solution

$$\begin{array}{r} \text{kg} \quad \text{g} \\ 34 \quad \textcircled{654} \\ + 234 \quad 524 \\ \hline 269 \quad 178 \end{array}$$

f) 52 l 276 ml and 44 l 954 ml

Solution:

$$\begin{array}{r} \text{l} \quad \text{ml} \\ \textcircled{52} \quad 276 \\ + 44 \quad 954 \\ \hline 97 \quad 230 \end{array}$$

b) 38 m 45 m from 67 m 40 cm

Solution

$$\begin{array}{r} \text{m} \quad \text{cm} \\ \textcircled{67} \quad \textcircled{40} \\ - 38 \quad 45 \\ \hline 28 \quad 95 \end{array}$$

d) 24 kg 24 g from 57 kg 708 g

Solution

$$\begin{array}{r} \text{kg} \quad \text{g} \\ 57 \quad \textcircled{708} \\ - 24 \quad 24 \\ \hline 33 \quad 68 \end{array}$$

f) 78 l 56 ml from 89 l 44 ml

Solution

$$\begin{array}{r} \text{l} \quad \text{ml} \\ \textcircled{89} \quad \textcircled{44} \\ - 78 \quad 56 \\ \hline 10 \quad 88 \end{array}$$

7. The length of a wool piece is 45 m 23 cm. If it is cut into two pieces and the length of one piece is 34 m 84 cm, find the length of the other piece.

Solution:

	m	c m
	44	100
length of wool piece =	45	23
length of one piece =	+ 34	84
length of other piece =	<u>10</u>	<u>39</u>

So the length of the other piece is 10 m 39 cm.

8. A truck has loaded goods with a mass of 169 kg 870 g. If 111 kg 321 g of more goods were loaded, find the total mass of the goods.

Solution:

	kg	g
	①	
Mass of loaded goods =	169	870
Mass when more good were loaded =	+ 111	321
Total mass of goods =	<u>281</u>	<u>191</u>

So the total mass of goods is 281 kg 191 g.

9. Barrel A has a capacity of 11 ℓ 940 ml and barrel B has a capacity of 25 ℓ 620 ml. Find the difference between their capacities.

Solution:

	ℓ	m ℓ
	24	1000
Capacity of barrel B =	25	620
Capacity of barrel A =	- 11	940
difference between thier capacity =	<u>13</u>	<u>680</u>

So the difference between the capacities of both barrels is 13 ℓ 680 ml.

10. A dairy shop sold 68 ℓ 200 ml of yoghurt on Saturday and 44 ℓ 875 ml of yoghurt on Sunday. How much more yoghurt was sold on Saturday than on Sunday?

Solution

	ℓ	m ℓ
	67	1000
Yoghurt ssold on Saturday =	68	200
Yoghurt ssold on Sunday =	- 44	875
Difference between both =	<u>23</u>	<u>325</u>

So, 23 ℓ 325 ml more yoghurt was sold on Saturday than on Sunday.

Time

Learning Check 5.10

1. Look at the clocks and write the time in digits and in words.

- a) in digits = 2:05:00
in words = 5 minutes, 0 seconds past 2.
- b) in digits = 3:23:05
in words = 23 minutes, 5 seconds past 3
- c) in digits = 3:26:45
in words = 26 minutes, 45 seconds past 5
- d) in digits = 12:54:37
in words = 54 minutes 37 seconds past 12
- e) in digits = 8:45:19
in words = 45 minutes 19 seconds past 8
- f) in digits = 8:13:30
in words = 13 minutes 30 seconds past 8

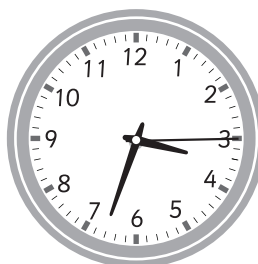
2. Draw the hands on the clocks for each given time.

a)



17:02:30

b)



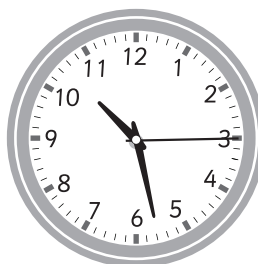
03:33:15

c)



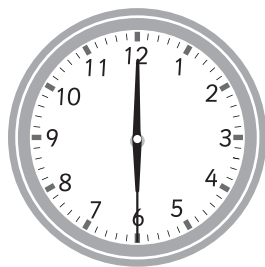
10:29:00

d)



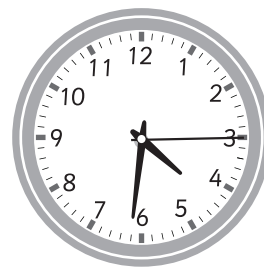
09:28:15

e)



06:00:30

f)



16:31:15

3. Write the given times in the 12 hour format.

a) 02:35:45 p.m.

b) 07:24:56 p.m.

c) 11:45:19 p.m.

d) 05:05:33 p.m.

e) 01:12:1 p.m.

f) 08:22:24 p.m.

4. Write the given times in the 24 hour format.

a) 01:07:25

b) 14:55:48

c) 11:35:23

d) 18:50:17

e) 09:20:42

f) 12:12:12

5. Write the given time in the 12 hour format and 24 hour format.

Answer:

12 hour format : 01:31:43

24 hour format : 13:31:43

6. Write the times shown in the 12 hour format (using a.m. and p.m.) and in the 2 hour format.

a) 12 hour = 05:54:18 a.m.

24 hour = 05:54:18

b) 12 hour = 06:25:58 a.m.

24 hour = 06:25:58

c) 12 hour = 07:21:42 p.m.

24 hour = 19:21:42

d) 12 hour = 10:18:06 p.m.

24 hour = 22:18:06

Learning Check 5.11

1. Convert the following into minutes.

a) 3 hours = _____ minutes.

Solution:

$$\begin{aligned} 3 \text{ hours} &= 3 \times 60 \text{ min} \\ &= 180 \text{ minutes.} \end{aligned}$$

b) 23 hours = _____ minutes.

Solution:

$$\begin{aligned} 23 \text{ hours} &= 23 \times 60 \text{ min} \\ &= 1380 \text{ minutes.} \end{aligned}$$

c) 9 hours = _____ minutes.

Solution:

$$\begin{aligned} 9 \text{ hours} &= 9 \times 60 \text{ min} \\ &= 540 \text{ minutes.} \end{aligned}$$

d) 15 hours = _____ minutes.

Solution:

$$\begin{aligned} 15 \text{ hours} &= 15 \times 60 \text{ min} \\ &= 900 \text{ minutes.} \end{aligned}$$

e) 16 hours 20 minutes = _____ minutes.

Solution:

$$\begin{aligned} 16 \text{ hours } 20 \text{ minutes} &= (16 \times 60) \text{ minutes} + 20 \text{ minutes} \\ &= 960 \text{ minutes} + 20 \text{ minutes} \\ &= 980 \text{ minutes} \end{aligned}$$

f) 12 hours 5 minutes = _____ minutes.

Solution:

$$\begin{aligned} 12 \text{ hours } 55 \text{ minutes} &= (12 \times 60) \text{ minutes} + 55 \text{ minutes} \\ &= 720 \text{ minutes} + 55 \text{ minutes} \\ &= 775 \text{ minutes} \end{aligned}$$

g) 7 hours 44 minutes = _____ minutes.

Solution:

$$\begin{aligned} 7 \text{ hours } 44 \text{ minutes} &= (7 \times 60) \text{ minutes} + 44 \text{ minutes} \\ &= 420 \text{ minutes} + 44 \text{ minutes} \\ &= 464 \text{ minutes} \end{aligned}$$

h) 11 hours 11 minutes = _____ minutes.

Solution:

$$\begin{aligned} 11 \text{ hours } 11 \text{ minutes} &= (11 \times 60) \text{ minutes} + 11 \text{ minutes} \\ &= 660 \text{ minutes} + 11 \text{ minutes} \\ &= 671 \text{ minutes} \end{aligned}$$

2. Convert the following into seconds.

a) 3 min = _____ sec.

Solution:

$$\begin{aligned} 3 \text{ min} &= 3 \times 60 \text{ sec} \\ &= 180 \text{ sec} \end{aligned}$$

b) 14 min = _____ sec.

Solution:

$$\begin{aligned} 14 \text{ min} &= 14 \times 60 \text{ sec} \\ &= 840 \text{ sec} \end{aligned}$$

c) 29 min = _____ sec.

Solution:

$$\begin{aligned} 29 \text{ min} &= 29 \times 60 \text{ sec} \\ &= 1740 \text{ sec} \end{aligned}$$

d) 31 min = _____ sec.

Solution:

$$\begin{aligned} 31 \text{ min} &= 31 \times 60 \text{ sec} \\ &= 1860 \text{ sec} \end{aligned}$$

e) 12 min 34 sec = _____ sec.

Solution:

$$\begin{aligned} 12 \text{ min } 34 \text{ sec} &= (12 \times 60) \text{ sec} + 34 \text{ sec} \\ &= 720 \text{ sec} + 34 \text{ sec} \\ &= 754 \text{ sec} \end{aligned}$$

f) 15 min 39 sec = _____ sec.

Solution:

$$\begin{aligned} 15 \text{ min } 39 \text{ sec} &= (15 \times 60) \text{ sec} + 39 \text{ sec} \\ &= 900 \text{ sec} + 39 \text{ sec} \\ &= 939 \text{ sec} \end{aligned}$$

g) 14 min 44 sec = _____ sec.

Solution:

$$\begin{aligned} 14 \text{ min } 44 \text{ sec} &= (14 \times 60) \text{ sec} + 44 \text{ sec} \\ &= 840 \text{ sec} + 44 \text{ sec} \\ &= 884 \text{ sec} \end{aligned}$$

g) 11 min 36 sec = _____ sec.

Solution:

$$\begin{aligned} 11 \text{ min } 36 \text{ sec} &= (11 \times 60) \text{ sec} + 36 \text{ sec} \\ &= 660 \text{ sec} + 36 \text{ sec} \\ &= 696 \text{ sec} \end{aligned}$$

Learning Check 5.12

1. Convert into months.

a) 13 years = _____ months.

Solution:

$$\begin{aligned} 13 \text{ years} &= 13 \times 12 \text{ months} \\ &= 156 \text{ months} \end{aligned}$$

b) 8 years = _____ months.

Solution:

$$\begin{aligned} 8 \text{ years} &= 8 \times 12 \text{ months} \\ &= 96 \text{ months} \end{aligned}$$

c) 26 years = _____ months.

Solution:

$$\begin{aligned} 26 \text{ years} &= 26 \times 12 \text{ months} \\ &= 312 \text{ months} \end{aligned}$$

d) 2 years 7 months = _____ months.

Solution:

$$\begin{aligned} 2 \text{ years} &= (2 \times 12) \text{ months} + 7 \text{ months} \\ &= 24 \text{ months} + 7 \text{ months} \\ &= 31 \text{ months} \end{aligned}$$

e) 3 years 4 months = _____ months.

Solution:

$$\begin{aligned} 3 \text{ years 4 months} &= (3 \times 12) \text{ months} + 4 \text{ months} \\ &= 36 \text{ months} + 4 \text{ months} \\ &= 40 \text{ months} \end{aligned}$$

f) 4 years 4 months = _____ months.

Solution:

$$\begin{aligned} 4 \text{ years 4 months} &= (4 \times 12) \text{ months} + 4 \text{ months} \\ &= 48 \text{ months} + 4 \text{ months} \\ &= 52 \text{ months} \end{aligned}$$

2. Convert months to days.

a) 5 months = _____

Solution:

$$\begin{aligned} 5 \text{ months} &= 5 \times 30 \text{ days} \\ &= 150 \text{ days} \end{aligned}$$

b) 7 months = _____

Solution:

$$\begin{aligned} 7 \text{ months} &= 7 \times 30 \text{ days} \\ &= 210 \text{ days} \end{aligned}$$

c) 14 months = _____

Solution:

$$\begin{aligned} 14 \text{ months} &= 14 \times 30 \text{ days} \\ &= 420 \text{ days} \end{aligned}$$

d) 11 months 14 days = _____

Solution:

$$\begin{aligned} 14 \text{ months } 14 \text{ days} &= (11 \times 30) \text{ days} + 14 \text{ days} \\ &= 330 \text{ days} + 14 \text{ days} \\ &= 344 \text{ days} \end{aligned}$$

e) 8 months 12 days = _____

Solution:

$$\begin{aligned} 8 \text{ months } 12 \text{ days} &= (8 \times 30) \text{ days} + 12 \text{ days} \\ &= 240 \text{ days} + 12 \text{ days} \\ &= 252 \text{ days} \end{aligned}$$

3. Convert weeks to days.

a) 5 weeks = _____ days

Solution:

$$\begin{aligned} 5 \text{ weeks} &= 5 \times 7 \text{ days} \\ &= 35 \text{ days} \end{aligned}$$

b) 8 weeks = _____ days

Solution:

$$\begin{aligned} 8 \text{ weeks} &= 8 \times 7 \text{ days} \\ &= 56 \text{ days} \end{aligned}$$

c) 13 weeks = _____ days

Solution:

$$\begin{aligned} 13 \text{ weeks} &= 13 \times 7 \text{ days} \\ &= 91 \text{ days} \end{aligned}$$

d) 9 weeks 3 days = _____ days

Solution:

$$\begin{aligned} 9 \text{ weeks } 3 \text{ days} &= (9 \times 7) \text{ days} + 3 \text{ days} \\ &= 63 \text{ days} + 3 \text{ days} \\ &= 66 \text{ days} \end{aligned}$$

e) 5 weeks 6 days = _____ days

Solution:

$$\begin{aligned} 5 \text{ weeks } 6 \text{ days} &= (5 \times 7) \text{ days} + 6 \text{ days} \\ &= 35 \text{ days} + 6 \text{ days} \\ &= 41 \text{ days} \end{aligned}$$

f) 8 weeks 2 days = _____ days

Solution:

$$\begin{aligned} 8 \text{ weeks } 2 \text{ days} &= (8 \times 7) \text{ days} + 2 \text{ days} \\ &= 56 \text{ days} + 2 \text{ days} \\ &= 58 \text{ days} \end{aligned}$$

Learning Check 5.13

1. Add the following.

a	h	min
	16	15
+	2	22
	18 h	37 min

b	h	min
	15	44
+	4	5
	19 h	49 min

c	h	min	sec
	5	21	33
+	4	11	12
	9 h	32 min	45 sec

d	min	sec
	6	41
+	2	17
	8 min	58 sec

e	years	months
	12	5
+	7	1
	19 years	6 months

f	years	months	days
	10	6	10
+	5	2	15
	15 years	8 months	23 days

g	years	months	days
	14	3	10
+	13	4	13
	27 years	7 months	23 days

2. Subtract the following.

a) 12 h 12 min 14 sec from 18 h 23 min 34 sec

Solution:

a	18 h	23 min	34 sec
–	12 h	12 min	14 sec
	6 h	11 min	20 sec

b) 14 months 3 weeks 14 days from 20 months 4 weeks 16 days.

Solution:

b	20 months	4 weeks	16 days
–	14 months	3 weeks	14 days
	6 months	1 week	2 days

c) 45 h 35 min from 56 h 55 min.

Solution:

c	56 h	55 min
–	45 h	35 min
	11 h	20 min

d) 34 years 11 months from 47 years 12 months.

Solution:

d	47 years	12 months
–	34 years	11 months
	13 years	1 month

e) 23 months 2 weeks from 28 months 3 weeks.

Solution:

b	28 months	3 weeks
–	23 months	2 weeks
	5 months	1 week

f) 14 h 11 min from 24 h 59 min.

Solution:

c	24 h	59 min
–	14 h	11 min
	10 h	48 min

g) 47 min 39 sec from 58 min 59 sec.

Solution:

c	58 min	59 sec
–	47 min	39 sec
	11 min	20 sec

Learning Check 5.14

1. Sadia is 23 years 4 months old and Madiha is 21 years 3 months old.
Find the difference between their ages in months.

Solution:

$$\begin{aligned}\text{Sadia's age} &= 23 \text{ years } 4 \text{ months} \\ \text{Madiha's age} &= - 21 \text{ years } 3 \text{ months} \\ \text{difference between their ages} &= \frac{2 \text{ years } 1 \text{ month}}{} \\ \text{In months} &= (2 \times 12) \text{ months} + 1 \text{ month} \\ &= 24 \text{ months} + 1 \text{ month} \\ &= 25 \text{ months.}\end{aligned}$$

So, the difference between the ages of Sadia and Madiha is 25 months.

- 2. Sara recited the Holy Quran for 3 h 35 min 23 sec on Friday and 5 h 14 min 31 sec on Saturday. Find the total time she spent reciting the Holy Quran.**

Solution:

$$\begin{array}{rcl} \text{Sara recited the Holy Quran on Friday} & = & 3 \text{ h } 35 \text{ min } 23 \text{ sec} \\ \text{Sara recited the Holy Quran on Saturday} & = & - 5 \text{ h } 14 \text{ min } 31 \text{ sec} \\ \hline \text{Total time spent} & = & 8 \text{ h } 49 \text{ min } 54 \text{ sec} \end{array}$$

So, Sara spent 8 h 49 min 54 sec on reciting the Holy Quran.

- 3. Mother cooked food in 2 hours 15 minutes and cleaned the house in 1 hour 12 minutes. How much more time did she spend cooking than cleaning? Convert the time in minutes.**

Solution:

$$\begin{array}{rcl} \text{Mother cooked food in} & = & 2 \text{ hours } 15 \text{ min} \\ \text{she cleaned the house in} & = & - 1 \text{ hour } 12 \text{ min} \\ \hline \text{difference} & = & 1 \text{ hour } 3 \text{ min} \\ \hline \text{In minutes} & = & 1 \text{ hour } 3 \text{ min} \\ & = & (1 \times 60) \text{ min} + 3 \text{ min} \\ & = & 60 \text{ min} + 3 \text{ min} \\ & = & 63 \text{ min} \end{array}$$

- 4. Bushra travelled for 3 hours 10 minutes by car and 5 hours 20 minutes by bus. Find:**

a) how much time did she travel altogether?

Solution:

$$\begin{array}{rcl} \text{Bushra travelled by car} & = & 3 \text{ hours } 10 \text{ min} \\ \text{Bushra travelled by bus} & = & - 5 \text{ hours } 20 \text{ min} \\ \hline \text{Bushra travelled altogether} & = & 8 \text{ hours } 30 \text{ min} \end{array}$$

So, Bushra travelled for 8 hours 30 min altogether.

b) how much more time did she travel by bus than by car?

Solution:

$$\begin{array}{rcl} \text{Bushra travelled by bus} & = & 5 \text{ hours } 20 \text{ min} \\ \text{Bushra travelled by car} & = & - 3 \text{ hours } 10 \text{ min} \\ \hline \text{difference} & = & 2 \text{ hours } 10 \text{ min} \end{array}$$

So, Bushra travelled 2 hours 10 more by bus than by car.

- 5. Salman worked in a factory on Monday for 9 hours 45 minutes and on Tuesday for 7 hours 35 minutes. How much more time did he spend in the factory on Monday than on Tuesday?**

Solution:

$$\begin{array}{rcl} \text{Salman worked on Monday} & = & 9 \text{ hours } 45 \text{ min} \\ \text{Salman worked on Tuesday} & = & - 7 \text{ hours } 35 \text{ min} \\ \hline \text{difference in time spent} & = & 2 \text{ hours } 10 \text{ min} \end{array}$$

So, Salman spent 2 hours 10 mins more in the factory on Monday than on Tuesday.

Unit Check 5.2

- 1. Encircle the correct options:**

- a) (i) 60 b) (ii) 12 c) (iii) 60
d) (iii) 150 e) (i) 42

- 2. Observe the activities of the child and write times shown in 12 hours and 24 hours format.**

- a) 12 hour : 09:42:10 p.m. b) 12 hour : 07:07:11 a.m.
24 hour : 21:42:10 24 hour : 07:07:11
- c) 12 hour : 02:13:52 p.m. d) 12 hour : 04:28:20 p.m.
24 hour : 14:13:52 24 hour : 16:28:20

3. Draw hands to show the times given:

a)



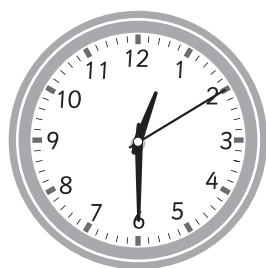
07:45:13

b)



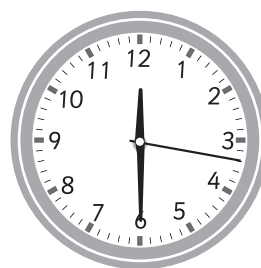
09:05:59

c)



12:30:10

d)



06:00:17

e)



03:07:09

f)



10:55:58

4. Match the analogue clocks with the digital clocks.

a)

21:55:38

b)

11:40:21

c)

19:59:47

d)

15:05:17

5. Convert the following.

a) 6 hours into minutes.

Solution:

$$\begin{aligned} 6 \text{ hours} &= 6 \times 60 \text{ min} \\ &= 360 \text{ min} \end{aligned}$$

b) 34 minutes into seconds.

Solution:

$$\begin{aligned} 34 \text{ minutes} &= 34 \times 60 \text{ sec} \\ &= 2040 \text{ sec} \end{aligned}$$

c) 23 minutes 59 seconds into seconds.

Solution:

$$\begin{aligned} 23 \text{ minutes } 59 \text{ seconds} &= (23 \times 60) \text{ sec} + 59 \text{ sec} \\ &= 1380 \text{ sec} + 59 \text{ sec} \\ &= 1439 \text{ sec} \end{aligned}$$

d) 4 hours 4 min into minutes.

Solution:

$$\begin{aligned} 4 \text{ hours } 4 \text{ minutes} &= (4 \times 60) \text{ min} + 4 \text{ min} \\ &= 240 \text{ min} + 4 \text{ min} \\ &= 244 \text{ min} \end{aligned}$$

e) 12 years into months.

Solution:

$$\begin{aligned} 12 \text{ years} &= (12 \times 12) \text{ months} \\ &= 144 \text{ months} \end{aligned}$$

f) 27 months into days.

Solution:

$$\begin{aligned} 27 \text{ months} &= 27 \times 30 \text{ days} \\ &= 810 \text{ days} \end{aligned}$$

g) 14 weeks into days.

Solution:

$$\begin{aligned} 14 \text{ weeks} &= 14 \times 7 \text{ days} \\ &= 98 \text{ days} \end{aligned}$$

h) 8 years 3 months into months.

Solution:

$$\begin{aligned} 8 \text{ years } 3 \text{ months} &= (8 \times 12) \text{ months} + 3 \text{ months} \\ &= 96 \text{ months} + 3 \text{ months} \\ &= 99 \text{ months} \end{aligned}$$

6. Add the following.

a) 15 h 23 min 16 sec and 11 h 34 min 40 sec.

Solution:

$$\begin{array}{r} 15 \text{ h } 23 \text{ min } 16 \text{ sec} \\ + 11 \text{ h } 34 \text{ min } 40 \text{ sec} \\ \hline 26 \text{ h } 57 \text{ min } 56 \text{ sec} \end{array}$$

b) 6 h 15 min 20 sec and 3 h 43 min 4 sec.

Solution:

$$\begin{array}{r} 6 \text{ h } 15 \text{ min } 20 \text{ sec} \\ + 3 \text{ h } 43 \text{ min } 4 \text{ sec} \\ \hline 9 \text{ h } 58 \text{ min } 24 \text{ sec} \end{array}$$

c) 3 months 2 weeks 4 days and 5 months 1 week 1 day.

Solution:

$$\begin{array}{r} 3 \text{ months } 2 \text{ weeks } 4 \text{ days} \\ + 5 \text{ months } 1 \text{ week } 1 \text{ day} \\ \hline 8 \text{ months } 3 \text{ weeks } 5 \text{ days} \end{array}$$

d) 13 years 5 months 2 weeks and 6 years 2 months 1 week.

Solution:

$$\begin{array}{r} 13 \text{ years } 5 \text{ months } 2 \text{ weeks} \\ + 6 \text{ years } 2 \text{ months } 1 \text{ week} \\ \hline 19 \text{ years } 7 \text{ months } 3 \text{ weeks} \end{array}$$

e) 16 months 1 week 4 days and 2 months 2 weeks 2 days.

Solution:

$$\begin{array}{r} 16 \text{ months } 1 \text{ week } 4 \text{ days} \\ + 2 \text{ months } 2 \text{ weeks } 2 \text{ days} \\ \hline 18 \text{ months } 3 \text{ weeks } 6 \text{ days} \end{array}$$

7. Subtract the following.

a) 11 hours 43 min 7 seconds from 13 hours 45 min 27 sec.

Solution:

$$\begin{array}{r} 13 \text{ hours } 45 \text{ min } 27 \text{ sec} \\ - 11 \text{ hours } 43 \text{ min } 7 \text{ sec} \\ \hline 2 \text{ hours } 2 \text{ min } 20 \text{ sec} \end{array}$$

b) 5 hours 14 min 24 seconds from 13 hours 45 min 27 sec.

Solution:

$$\begin{array}{r} 7 \text{ hours } 29 \text{ min } 34 \text{ sec} \\ - 5 \text{ hours } 14 \text{ min } 24 \text{ sec} \\ \hline 2 \text{ hours } 15 \text{ min } 10 \text{ sec} \end{array}$$

c) 12 months 2 weeks 1 day from 23 months 3 weeks 6 days.

Solution:

$$\begin{array}{r} 23 \text{ months } 3 \text{ weeks } 6 \text{ days} \\ - 12 \text{ months } 2 \text{ weeks } 1 \text{ day} \\ \hline 11 \text{ months } 1 \text{ week } 5 \text{ days} \end{array}$$

d) 14 years 3 months 1 week from 25 years 9 months 2 weeks.

Solution:

$$\begin{array}{r} 25 \text{ years } 9 \text{ months } 2 \text{ weeks} \\ - 14 \text{ years } 3 \text{ months } 1 \text{ week} \\ \hline 11 \text{ years } 6 \text{ months } 1 \text{ week} \end{array}$$

e) 22 months 1 week 3 days from 24 months 3 weeks 6 days.

Solution:

$$\begin{array}{r} 24 \text{ months } 3 \text{ weeks } 6 \text{ days} \\ - 22 \text{ months } 1 \text{ week } 3 \text{ days} \\ \hline 2 \text{ months } 2 \text{ weeks } 3 \text{ days} \end{array}$$

8. Fahad spent 3 months 3 weeks in Murree and 4 months 3 weeks in Islamabad. How much more time did he spend in Islamabad than in Murree? Tell the time in days.

Solution:

$$\begin{array}{rcl} \text{Fahad spent in Islamabad} & = & 4 \text{ months } 3 \text{ weeks} \\ \text{Fahad spent in Murree} & = & - 3 \text{ months } 3 \text{ weeks} \\ \hline \text{difference} & = & 1 \text{ month } 0 \text{ weeks} \\ \hline \text{In days} & = & 1 \text{ month} \\ & = & 1 \times 30 \text{ days} \\ & = & 30 \text{ days} \end{array}$$

So, Fahad spent 30 days or 1 month more in Islamabad than Murree.

- 9. Saba recited one para in 2 hours 15 minutes and Nazia recited one para in 3 hours 45 minutes. Who took more time reciting a para and by how much?**

Solution:

$$\begin{array}{rcl} \text{Nazia recited para in} & = & 3 \text{ hours } 45 \text{ min} \\ \text{Saba recited para in} & = & - 2 \text{ hours } 15 \text{ min} \\ \hline \text{difference} & = & 1 \text{ hour } 30 \text{ min} \end{array}$$

So, Nazia took more time than Saba. Nazia took 1 hour 30 min more than Saba.

- 10. Madiha wrote a book in 3 months 15 days and Ayesha wrote a book in 5 months 11 days. Find the total time both authors spent writing books. Tell the time in days.**

Solution:

$$\begin{array}{rcl} \text{Madiha spent in writing a book} & = & 3 \text{ months } 15 \text{ days} \\ \text{Ayesha spent in writing a book} & = & - 5 \text{ months } 11 \text{ days} \\ \hline \text{Total time both spent} & = & 8 \text{ months } 26 \text{ days} \\ \text{In days:} & = & 8 \text{ months } 26 \text{ days} \\ & = & (8 \times 30) \text{ days} + 26 \text{ days} \\ & = & 24 \text{ days} + 26 \text{ days} = 266 \text{ days} \end{array}$$

So, both the authors spent 266 days in writing the book.

- 11. Qadeer took 5 hours 12 minutes to reach Lahore from Islamabad and 4 hours 16 minutes from Lahore to Multan. Find the total time he spent travelling from Islamabad to Multan.**

Solution:

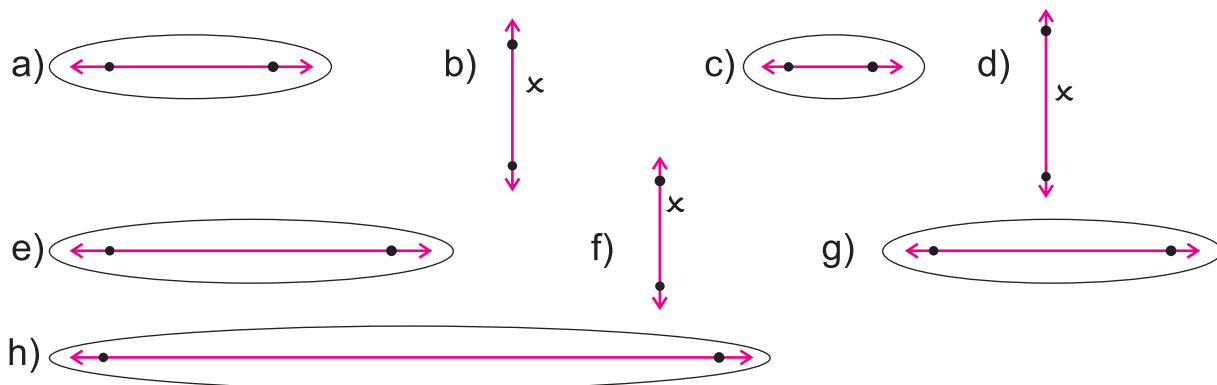
$$\begin{array}{rcl} \text{Qadeer took to reach Lahore} & = & 5 \text{ hours } 12 \text{ min} \\ \text{Qadeer took to reach Multan} & = & + 4 \text{ hours } 16 \text{ min} \\ \hline \text{Total time} & = & 9 \text{ hours } 28 \text{ min} \end{array}$$

So, Qadeer took 9 hours 28 minutes in total to travel from Islamabad to Multan.

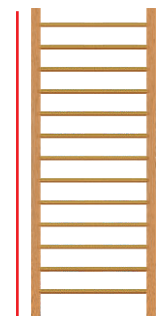
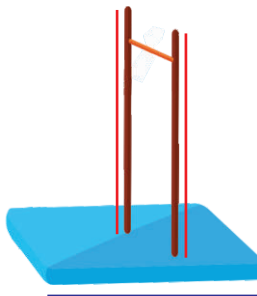
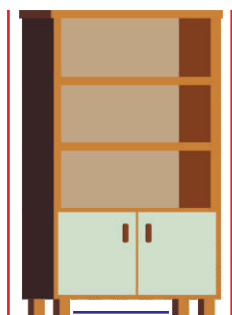
Unit 6: Geometry

Learning Check 6.1

1. Circle the horizontal lines and cross (x) out the vertical lines.



2. Mark the horizontal lines blue and the vertical lines red in these shapes and letters.



3. Tick (✓) the parallel lines.

a) ✓

b) ✓

c)

d)

e)

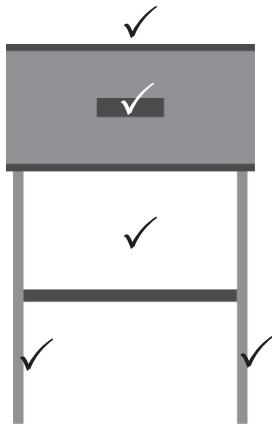
f)

g)

h) ✓

a, b and h are parallel lines.

4. Mark the parallel lines in these figures.



Learning Check 6.2

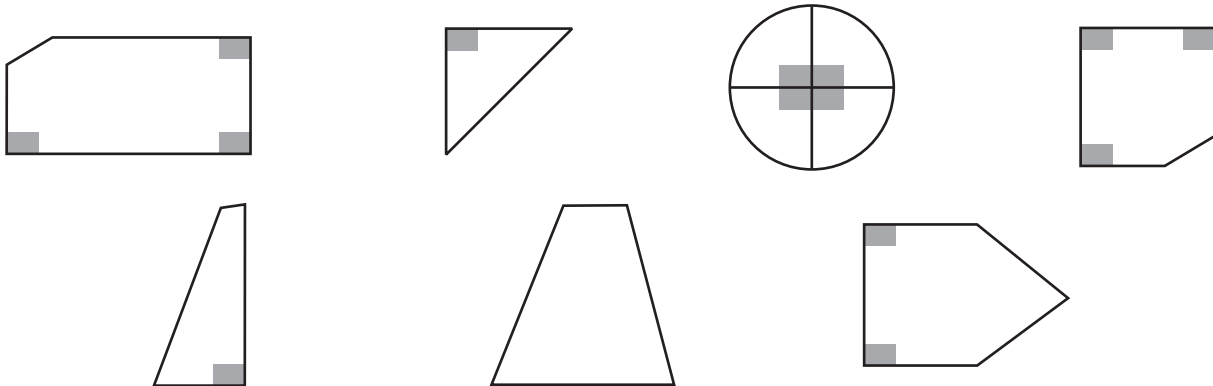
1. Label the parts of the angle.

- a) Final arm b) Vertex c) initial arm

2. Look at the angles and identify the right angle, acute angle and obtuse angle.

- a) $\angle ABE$ is a/an obtuse angle.
 b) $\angle CBE$ is a/an right angle.
 c) $\angle DBE$ is a/an acute angle.

3. Identify the right angles in these shapes (if any) and mark them red.



4. Observe these angles and write the measurement of each angle.

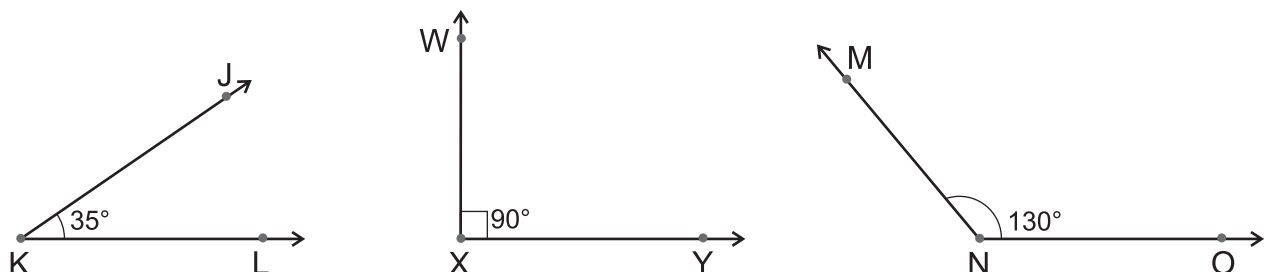
- a) $\angle ABC = 60^\circ$ c) $\angle JIH = 150^\circ$
 b) $\angle GFE = 170^\circ$ d) $\angle PQR = 65^\circ$

5. Measure these angles using a protractor.

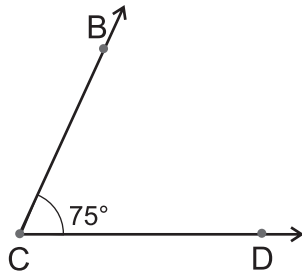
- a) $\angle ABC = 30^\circ$ c) $\angle XYZ = 110^\circ$
 b) $\angle LMN = 90^\circ$ d) $\angle GHI = 60^\circ$

6. Draw these angles using a protractor.

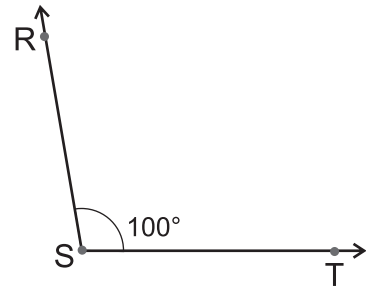
- a) $\angle JKL = 35^\circ$ b) $\angle WXY = 90^\circ$ c) $\angle MNO = 130^\circ$



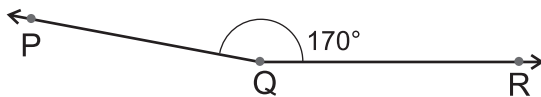
d) $\angle BCD = 75^\circ$



e) $\angle RST = 100^\circ$



f) $\angle PQR = 170^\circ$



Learning Check 6.3

1. Label the parts of the circle.

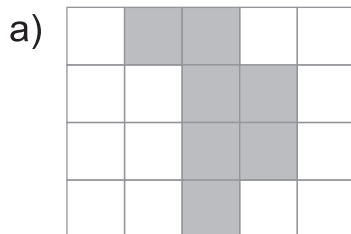
- | | |
|------------------|-------------|
| a) radius | c) diameter |
| b) circumference | d) center |

2. Name the green parts of the circles.

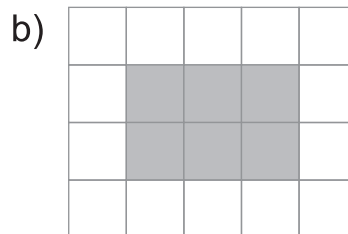
- | | |
|------------------|-------------|
| a) circumference | c) center |
| b) radius | d) diameter |

Learning Check 6.4

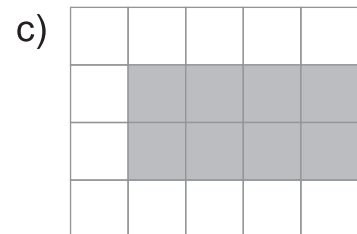
3. Find the perimeter and area of these shapes if one small square = 1 cm. Also write the correct units.



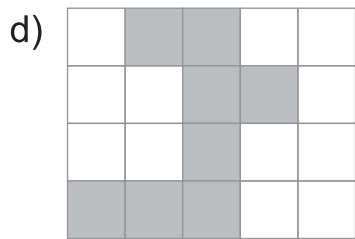
Perimeter = 14 cm
Area = 7 cm²



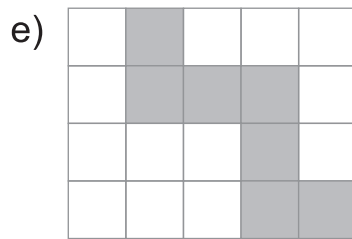
Perimeter = 10 cm
Area = 6 cm²



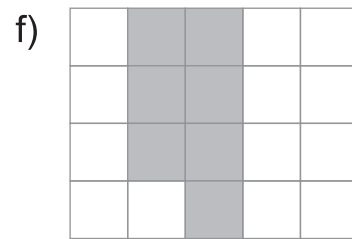
Perimeter = 12 cm
Area = 8 cm²



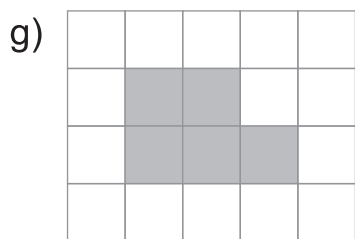
Perimeter = 18 cm
Area = 8 cm²



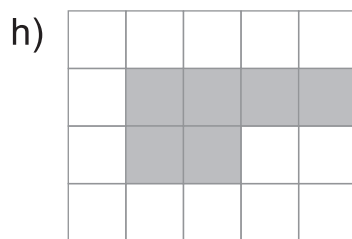
Perimeter = 16 cm
Area = 7 cm²



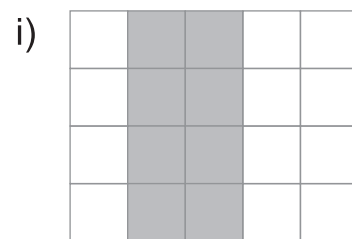
Perimeter = 12 cm
Area = 7 cm²



Perimeter = 10 cm
Area = 5 cm²



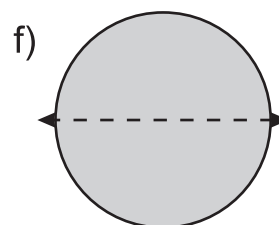
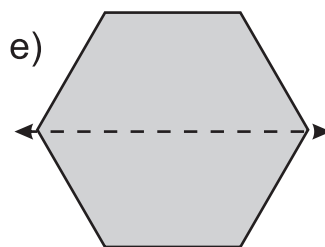
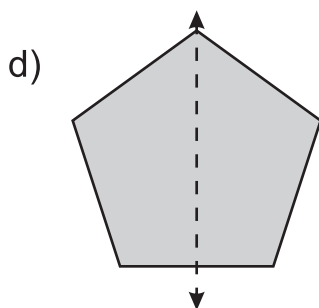
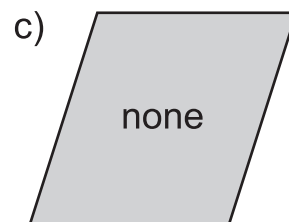
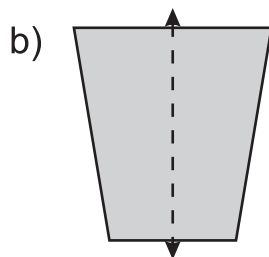
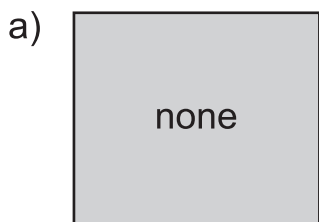
Perimeter = 12 cm
Area = 6 cm²



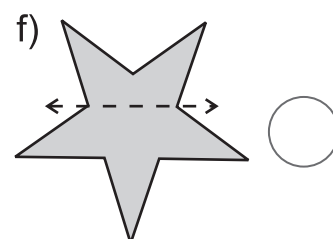
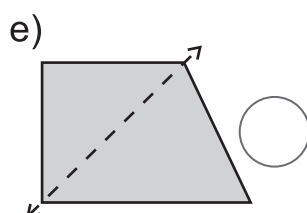
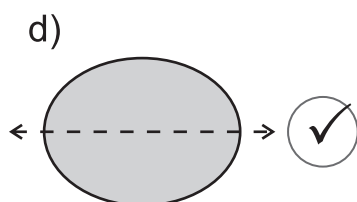
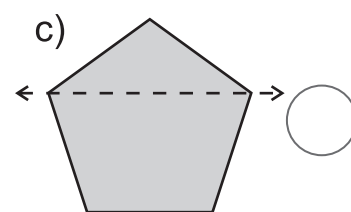
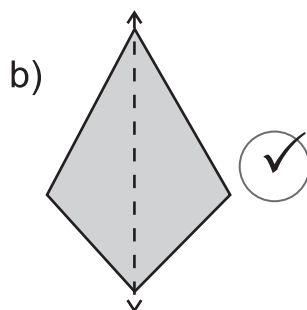
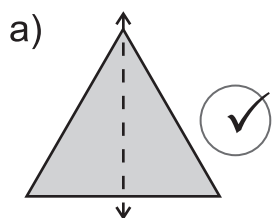
Perimeter = 12 cm
Area = 8 cm²

Learning Check 6.5

1. Look at the shapes and identify the correct lines of symmetry (if any) and trace them.

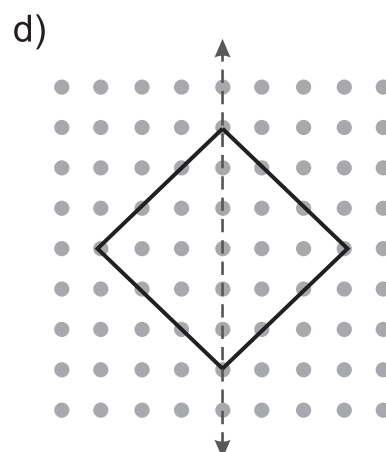
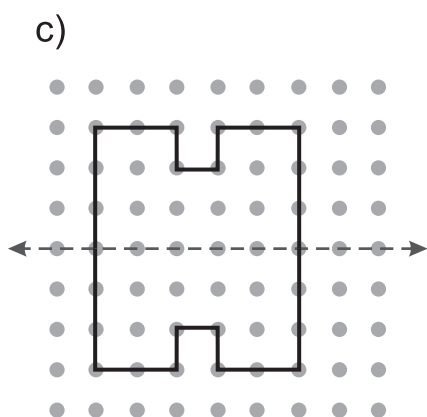
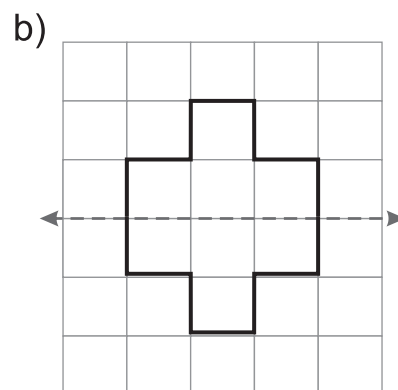
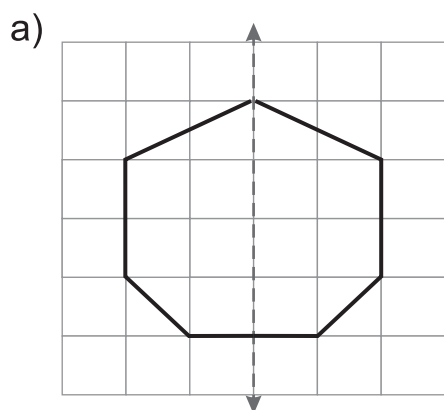


2. Tick (✓) the shapes if the line dividing it is the line of symmetry.



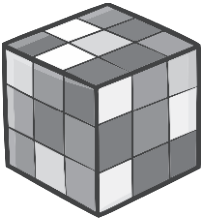
Only in figures, (a), (b) and (d) the line dividing the shape is the line of symmetry.

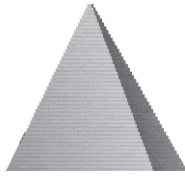
3. Complete these symmetric shapes with respect to the given line of symmetry.

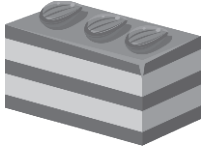


Learning Check 6.6

1. Observe the shapes and write their names. Also write the correct number of faces, edges and vertices for each.

a) Shape: <u>cube</u> Faces: <u>6</u> Edges: <u>12</u> Vertices: <u>8</u>	b) Shape: <u>sphere</u> Faces: <u>1</u> Edges: <u>0</u> Vertices: <u>0</u>
	

c) Shape: <u>cone</u> Faces: <u>2</u> Edges: <u>1</u> Vertices: <u>1</u>	d) Shape: <u>square pyramid</u> Faces: <u>5</u> Edges: <u>8</u> Vertices: <u>5</u>
	

e) Shape: <u>cuboid</u> Faces: <u>6</u> Edges: <u>12</u> Vertices: <u>8</u>	f) Shape: <u>cylinder</u> Faces: <u>3</u> Edges: <u>2</u> Vertices: <u>0</u>
	

2. Observe and compare these solids by writing the similarities and differences between them with respect to faces, edges, vertices and if they can/cannot slide or roll.

a)

Similarities

Differences

Cube	Cuboid
1. 8 vertices	8 vertices
2. 6 flat faces	6 flat faces
3. 12 edges	12 edges
4. Can slide	Can slide
5. Cannot roll	Cannot roll

Cube	Cuboid
1. Its all faces are square.	1. Its all faces are rectangular.
2. It has edges of equal length.	2. It has edges of different length.

b)

Similarities**Square Pyramid and Cone**

Both pyramid and cone can slide.

Differences**Square Pyramid and Cone**

1. A cone has 1 vertex, a pyramid has 5 vertices.
2. A cone has 2 faces, a pyramid has 5 flat faces.
3. A cone has 1 circular edge, a pyramid has 8 straight edges.
4. A cone can roll on its curved face, but a pyramid cannot roll.

c)

Similarities**Cylinder and sphere**

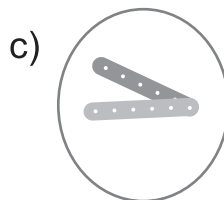
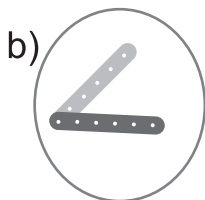
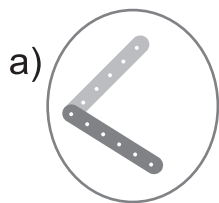
1. Both have 0 vertices.
2. Both can roll.

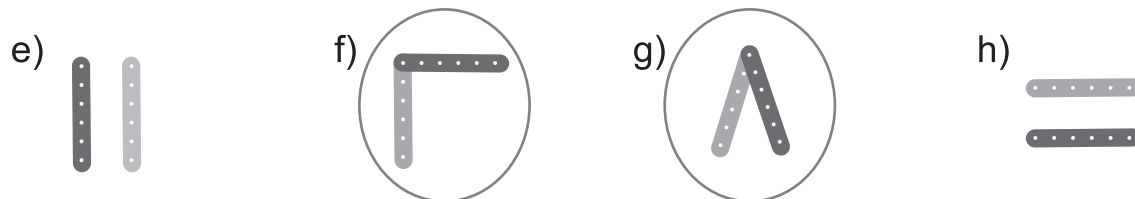
Differences**Cylinder and sphere**

1. A cylinder has 3 faces, a sphere has only 1 curved face.
2. A cylinder has 2 edges, a sphere has 0 edges.
3. A cylinder can slide, a sphere cannot slide.

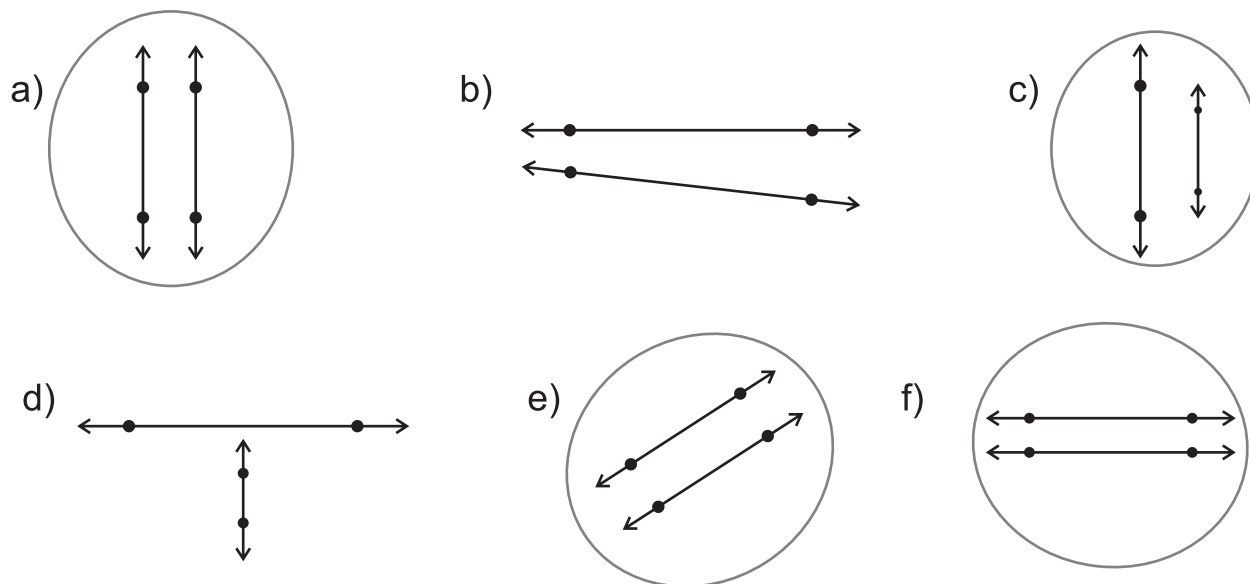
Unit Check 6**1. Encircle the correct options.**

- (iii) right
- (iv) circumference
- (ii) 11
- (ii) halves
- (iii) area

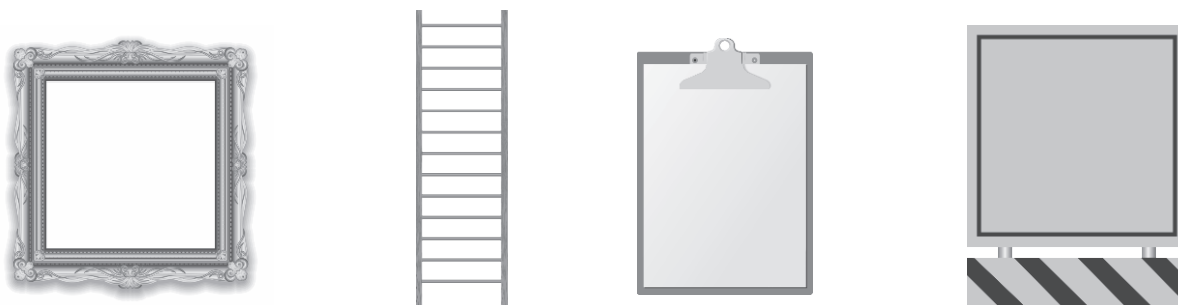
2. Circle the angles.



3. Circle the parallel lines and cross (x) out the non-parallel lines.

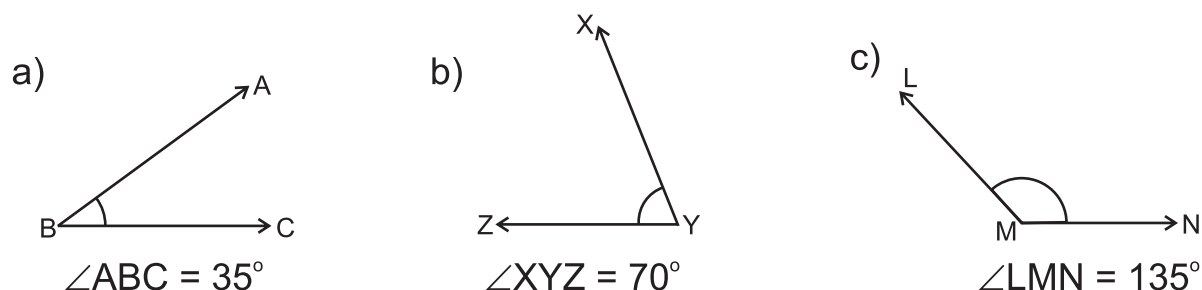


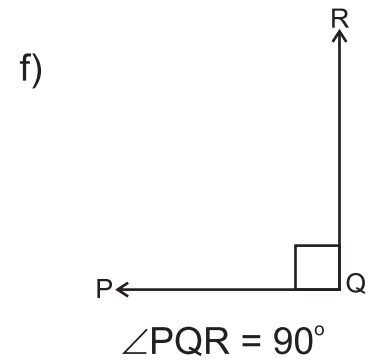
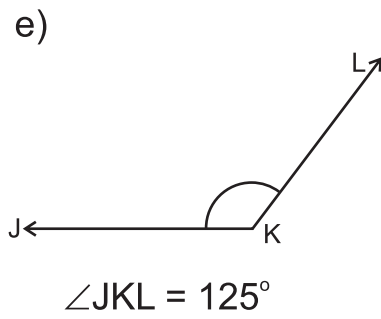
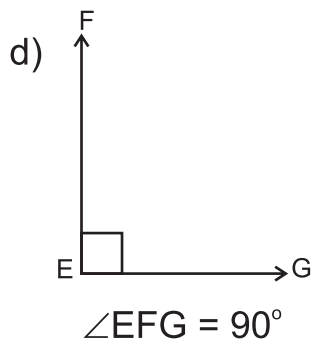
4. Identify the parallel lines in these figures.



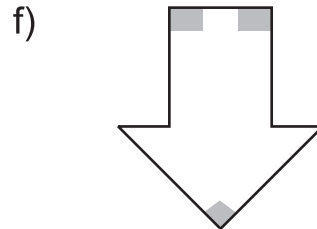
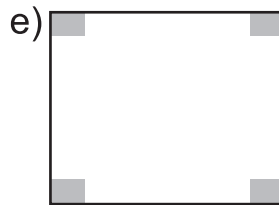
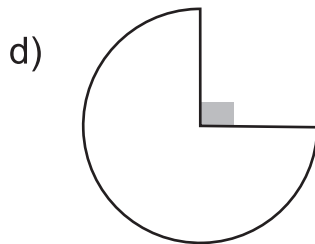
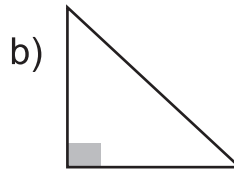
In all these figures, all horizontal lines are parallel to each other in every figure, and also all vertical lines are parallel to each other in every figure.

5. Measure these angles using a protractor and name them.



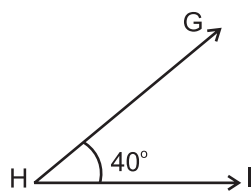


6. Identify and mark the right angles in these shapes (if any).

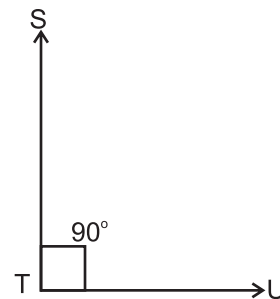


7. Draw these angles using a protractor.

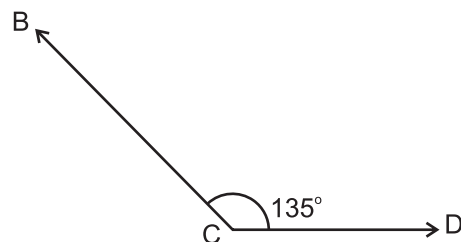
a) $\angle GHI = 40^\circ$



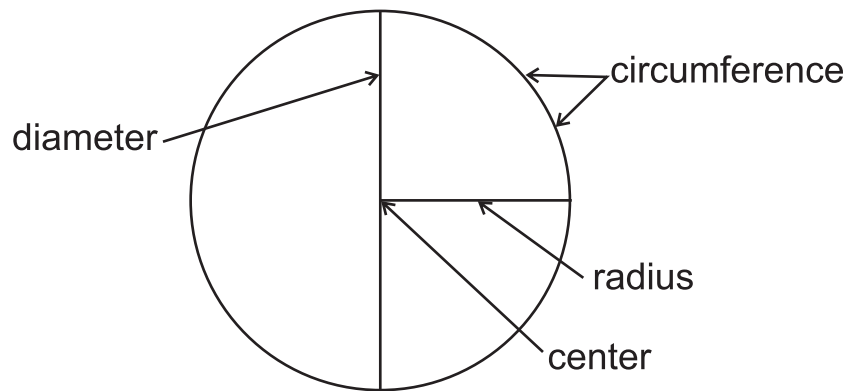
b) $\angle STU = 90^\circ$



c) $\angle BCD = 135^\circ$



8. Draw a circle and label its parts.



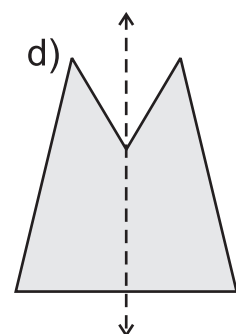
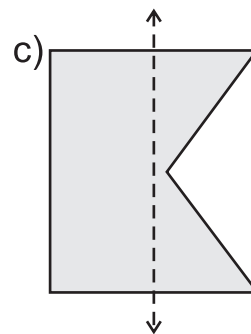
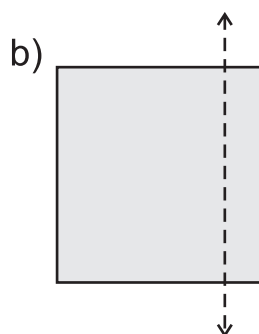
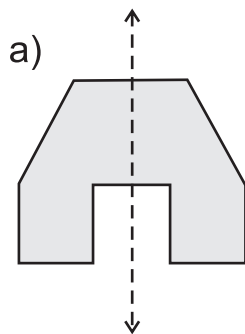
9. Find the perimeter and area of these shapes if the length of one side of the small square = 1 m.

a) perimeter = 14m
area = 10m^2

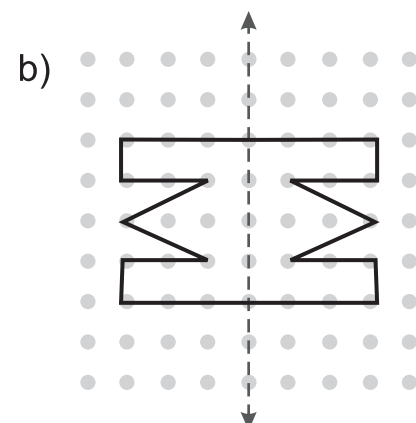
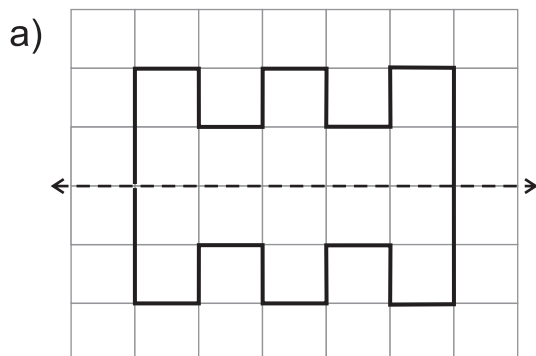
b) perimeter = 16m
area = 11m^2

c) perimeter = 22m
area = 14m^2

10. Tick (✓) the shapes if the line dividing it is the line of symmetry.



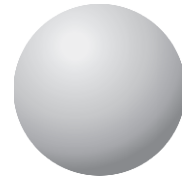
11. Complete these symmetric shapes with respect to the given line of symmetry.



12. Match the correct shapes.

a)

- 8 vertices
- 6 flat faces
- 12 edges



b)

- 0 vertices
- 3 faces
- 2 edges



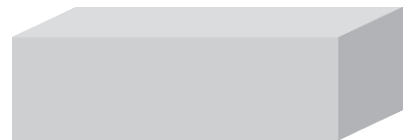
c)

- 0 vertices
- 1 face
- 0 edges



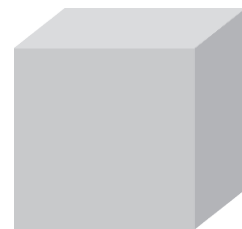
d)

- 5 vertices
- 5 faces
- 8 edges



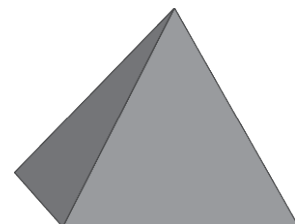
e)

- 1 vertex
- 2 faces
- 1 edge



f)

- 8 vertices
- 6 rectangular faces
- 12 edges



Unit 7: Data Handling

Learning Check 7.1

1. The marks of grade 4 students in the monthly test of Mathematics are given below.

- | | |
|---|--------------------------|
| a) Who got 20 marks in the test? | <u>Ahad</u> |
| b) Which two students got the same marks in the test? | <u>Arham and Ibrahim</u> |
| c) How many more marks did Marwa obtain than Ahad? | <u>4</u> |
| d) How many marks did Ibrahim obtain? | <u>16</u> |
| e) Which student got the highest marks? | <u>Marwa</u> |

2. The following horizontal bar graph shows the sale of electronic items in a store on Wednesday.

- | | |
|---|----------------|
| a) How many heaters were sold? | <u>18</u> |
| b) Which item was sold the most? | <u>kettles</u> |
| c) Which item was sold the least? | <u>juices</u> |
| d) How many electronic items were sold in all on Wednesday? | <u>60</u> |
| e) How many more choppers were sold than grinders? | <u>3</u> |
| f) How many kettles were sold? | <u>24</u> |
| g) How many less juicers were sold than heaters? | <u>15</u> |

3. Sadia has collected different numbers of crayons. She represents the data in the bar graph as below.

- | | |
|---|-------------------|
| a) How many yellow crayons are there? | <u>25</u> |
| b) How many more blue crayons are there than red? | <u>15</u> |
| c) In which colour does Sadia have the most crayons? | <u>green</u> |
| d) In which colour does Sadia have the least crayons? | <u>red</u> |
| e) What is the total number of red, blue and yellow crayons altogether? | <u>80 cryones</u> |
| f) How many crayons has Sadia collected altogether? | <u>155 cryons</u> |

Learning Check 7.2

1. The line graph shows the attendance of students in a Quran class.

- a) 15 students attended the Quran class on Monday.
- b) On Sunday, 10 more students attended the class than on Thursday.
- c) $30-20=10$ fewer students attended the class on Tuesday than Wednesday.
- d) The same number of students attended the class on Wednesday and Saturday.
- e) On Friday, the most number of students attended the class.
- f) On Monday, the least number of students attended the class.
- g) $15+20+30+25+40+30+35=195$ students attended the Quran class during 7 days altogether.

2. The line graph shows data about the sale of bikes in the last 6 months of a year.

- a) October + November + December
 $= 30 + 45 + 55 = 130$
- b) 50
- c) July
- d) July + August = $20 + 40 = 60$ bikes
- e) Bike sold in November - Bikes sold in August
 $= 45 - 40 = 5$
- f) December
- g) $20 + 40 + 50 + 45 + 55 = 240$ bikes

3. The following line graph shows the marks (out of 20) obtained by Haroon in his weekly Mathematics tests.

- a) 6 marks
- b) Week 8
- c) Week 1
- d) Week 5 and 7
- e) Week 4 and 7
- f) 6
- g) 20
- h) Haroon is improving, as in week 1, he got 6 marks while they increased to 20 in the week 8.

Learning Check 7.3

1. The following pie chart shows the number of Islamic books sold in a bookstore during the first 6 months of a year.

a) How many books were sold in January and February altogether?

Answer: $240 + 186 = 426$ books

b) In which month were the most number of books sold?

Answer: April

c) In which month were the least number of books sold?

Answer: February

d) What is the difference of the most and the least number of books sold?

Answer: Book sold in April – Books sold in Feb
 $= 368 - 186 = 182$

e) How many less books were sold in June than in May?

Answer: Book sold in May – Books sold in June
 $= 322 - 200 = 122$

f) What is the total number of books sold altogether?

Answer: $240 + 186 + 200 + 368 + 322 + 200 = 1516$ books

2. The following pie chart shows the number of students in grade 1 to 5 of a particular school.

a) 82 students

b) 90 students

c) Grade 4

d) Grade 2

e) Grade 1 + Grade 2 + Grade 3 = $75 + 59 + 82 = 216$

f) Grade 4 + Grade 5 = $92 + 90 = 182$

g) Grade 5 + Grade 1 = $90 - 75 = 15$

h) Grade 1 + Grade 2 + Grade 3 + Grade 4 + Grade 5
 $= 75 + 59 + 82 + 92 + 90$
 $= 398$

3. The following pie chart shows the number of pages in textbooks of different subjects. Observe it and answer the following questions.

a) 140

b) 84

c) Computer

d) Math

e) 8 pages ($140 - 132 = 8$)

f)
$$\frac{\text{Science book pages}}{\text{Total no. of pages of all books}} = \frac{140}{952} = \frac{5}{34}$$

g) Urdu and Science

Unit Check 7

1. Encircle the correct options.

a) (ii) points

b) (ii) width

c) (iii) line graph

d) (iii) axis

e) (iii) scale

2. The following bar graph shows the number of animals Arham saw in a farm.

a) 80

b) 20

c) horse

d) sheep

e) 20

f) 300

3. The line graph shows data about the sale of digital tasbeehs in a shop during 8 months.

- a) 450
- b) 225
- c) 675
- d) 8th month
- e) 1st month
- f) 2550

4. The following pie chart shows the sale of USB drives having different storage capacity sold during a month in a store.

- a) 84
- b) 256 GB
- c) 16 GB
- d) $\frac{38}{332} = \frac{17}{166} \left(\frac{\text{Number of 16 GB USB Drives}}{\text{Total no. of USB drives sold}} \right)$
- e) 56
- f) 332 (42 + 38 + 84 + 70 + 98 = 332)