MATHS

Guide

4

According to the
Single National Curriculum 2020

Writers

Mirza Aslam Baig, Miss Ambreen Shahid

E. Reviewers Committee PCTB

Dr. Tanveer Iqbal Mughal

Mr. Ishtiaq Ahmad

Ms. Faryal Saeed Rana

Dr. Zulfiqar Ali

Mr. Abdul Jabbar

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Contact: 0092-42-357239505

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My name is _____ and this is my Mathematics Book of class four.

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Unit 1

Whole Numbers and Operations

1.1 Whole Numbers

EXERCISE 1.1

1. Write the following numbers in expanded form.

i	49,473	40,000 + 9,000 + 400 + 70 + 3
ii	73,478	70,000 + 3,000 + 400 + 70 + 8
iii	94,367	90,000 + 4,000 + 300 + 60 + 7
iv	53,201	50,000 + 3,000 + 200 + 1
v	31,324	30,000 + 1,000 + 300 + 20 + 4
vi	14,079	10,000 + 4,000 + 70 + 9
vii	23,146	20,000 + 3,000 + 100 + 40 + 6
viii	30,302	30,000 + 300 + 2

2. Write the following numbers in standard form.

i 20,000 + 2,000 + 200 + 50 + 6 = 22,256

ii 40,000 + 6,000 + 400 + 30 + 9 = 46,439

3. Write the place value of coloured digits in each number.

i	4 2 8 6 4	Thousands	ii	5 3 7 3 4	Hundreds
iii	3 1 5 6 7	Thousands	iv	3 2 1 8 6	Ten Thousands

v 3 8 7 6 2 Hundreds

vi 2 9 8 1 2 Ones

vii 8 7 5 8 3 Hundreds

viii 5 3 2 7 3 Ones

4. Write the given numbers in words.

i 6 7 , 3 4 8 Sixty-seven thousand, three hundred and forty-eight.

ii 4 0 8 , 3 2 5 Four hundred and eight thousand, three hundred and twenty-five.

iii 1 1 1 , 0 0 0 One hundred and eleven thousand.

iv 6 4 , 4 2 6 Sixty-four thousand, four hundred and twenty-six.

v 3 2 , 1 3 7 Thirty-two thousand, one hundred and thirty-seven.

vi 1 9 7 , 2 1 1 One hundred and ninety-seven thousand, two hundred and eleven.

vii 7 3 3 , 2 2 9 Seven hundred and thirty-three thousand, two hundred and twenty-nine.

viii 8 7 , 9 2 7 Eighty-seven thousand, nine hundred and twenty-seven.

5. Write the following in numerals.

i Thirty-five thousand, four hundred and ninety-nine. 35,499

ii Thirty-one thousand, six hundred and fifty-four. 31,654

iii Ninety-five thousand and eighty-two. 95,082

iv Seventy-nine thousand and seventy-two. 79,072

v Seven hundred and nine thousand, four hundred and five. 709,405

EXERCISE 1.2

1. Compare the following numbers by using symbols "<", ">" or "=".

i	19,540	>	18,540	ii	84,640	<	84,730
iii	33,928	=	33,928	iv	42,656	<	43,669
v	12,599	<	12,856	vi	99,868	=	99,868

2. Arrange the given numbers in ascending and descending order.

i 74,622 18,426 63,626 54,226

Ascending = 18,426 ; 54,226 ; 63,626 ; 74,622

Descending = 74,622 ; 63,626 ; 54,226 ; 18,426

ii 53,221 68,799 62,100 26,576

Ascending = 26,576 ; 53,221 ; 62,100 ; 68,799

Descending = 68,799 ; 62,100 ; 53,221 ; 26,576

iii 13,141 30,241 31,041 31,111

Ascending = 13,141 ; 30, 241 ; 31,041 ; 31,111

Descending = 31,111 ; 31,041 ; 30,241 ; 13,141

Addition and Subtraction

EXERCISE 1.3

1.2 Addition

1. Find the sums.

i

T.Th	Th	H	T	O
7	①2	9	3	1
+ 2	4	1	5	0
9	7	0	8	1

ii

T.Th	Th	H	T	O
3	3	①1	5	2
+ 2	4	6	9	4
5	7	8	4	6

iii

T.Th	Th	H	T	O
①6	6	①5	9	7
+ 2	6	2	8	2
9	2	8	7	9

iv

T.Th	Th	H	T	O
5	3	①1	①3	2
+ 4	2	5	6	8
9	5	7	0	0

v

T.Th	Th	H	T	O
4	①5	9	①3	8
+ 2	3	4	0	5
6	9	3	4	3

vi

T.Th	Th	H	T	O
①1	①6	9	1	6
+ 1	5	3	7	2
3	2	2	8	8

2. Solve the following numbers.

i) 53,949 + 34,353

5	①3	①9	①4	9
+ 3	4	3	5	3
8	8	3	0	2

ii) 44,007 + 23,098

4	4	①0	①0	7
+ 2	3	0	9	8
6	7	1	0	5

iii) 64,007 + 33,098

6	4	①0	①0	7
+ 3	3	0	9	8
9	7	1	0	5

iv) 47,984 + 33,649

①4	①7	①9	①8	4
+ 3	3	6	4	9
8	1	6	3	3

v) 34,385 + 27,438

①3	4	①3	①8	5
+ 2	7	4	3	8
6	1	8	2	3

vi) 57,593 + 36,423

①5	①7	①5	9	3
+ 3	6	4	2	3
9	4	0	1	6

3. Solve the following word problems.

i.

	①	①	①		
	7	5	8	6	5
+	8	0	6	7	5
1	5	6	5	4	0

Total amount in his bank account is Rs.156,540.

ii.

	①	①		①	
	5	6	2	7	8
+	3	7	8	0	5
	9	4	0	8	3

Total 94,083 persons are living in a town.

iii.

	①	①	①	①	
	3	2	7	6	5
+	2	9	8	7	6
	6	2	6	4	1

Ejaz travelled total distance 62,641km in two months.

iv.

	①	①	①	①	
	5	6	2	7	5
+	2	5	7	8	5
	8	2	0	6	0

Hammad donates Rs. 82,060 in total.

1.3 Subtraction

EXERCISE 1.4

1. Subtract the following numbers.

i

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

ii

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

iii

	T.Th	Th	H	T	O
	$^{5}\not{6}$	$^{①4}\not{5}$	$^{①3}\not{4}$	$^{①0}\not{1}$	①1
–	3	9	7	2	2
	2	5	6	8	9

iv

	T.Th	Th	H	T	O
	$^{7}\not{8}$	$^{①7}\not{8}$	$^{①0}\not{1}$	①3	5
–	3	9	8	7	5
	4	8	2	6	0

v

	T.Th	Th	H	T	O
	$^{8}\not{9}$	$^{①1}\not{2}$	$^{①2}\not{3}$	$^{①0}\not{1}$	①2
–	7	6	5	4	3
	1	5	7	6	9

vi

	T.Th	Th	H	T	O
	$^{3}\not{4}$	$^{①2}\not{3}$	$^{①2}\not{3}$	$^{①1}\not{2}$	①2
–	1	5	6	8	4
	2	7	6	3	8

2. Solve the following word problems.

i.

	6	$^{2}\not{3}$	$^{①0}\not{1}$	$^{①0}\not{1}$	①0
–	3	1	2	3	5
	3	1	8	7	5

There are 31,875 women in the town.

ii.

	6	$^{7}\not{8}$	$^{①2}\not{3}$	$^{①5}\not{6}$	①5
–	3	7	5	8	7
	3	0	7	7	8

The other number is 30,778.

iii.

	$^{6}\not{7}$	①4	$^{7}\not{8}$	①6	9
–	3	9	4	8	5
	3	5	3	8	4

35,384 more trees were planted in Lahore.

1.4 Multiplication

EXERCISE 1.5

1. Write vertically in your notebook and solve the following numbers.

i.
$$\begin{array}{r} 6531 \\ \times\ 53 \\ \hline 19593 \\ 326550 \\ \hline 346143 \end{array}$$

ii.
$$\begin{array}{r} 1530 \\ \times\ 54 \\ \hline 6120 \\ 76500 \\ \hline 82620 \end{array}$$

iii.
$$\begin{array}{r} 6210 \\ \times\ 60 \\ \hline 0000 \\ 372600 \\ \hline 372600 \end{array}$$

iv.
$$\begin{array}{r} 8815 \\ \times\ 63 \\ \hline 26445 \\ 528900 \\ \hline 555345 \end{array}$$

v.
$$\begin{array}{r} 6108 \\ \times\ 25 \\ \hline 30540 \\ 122160 \\ \hline 152700 \end{array}$$

vi.
$$\begin{array}{r} 9828 \\ \times\ 97 \\ \hline 68796 \\ 884520 \\ \hline 953316 \end{array}$$

vii.
$$\begin{array}{r} 1007 \\ \times\ 81 \\ \hline 1007 \\ 80560 \\ \hline 81567 \end{array}$$

viii.
$$\begin{array}{r} 4231 \\ \times\ 55 \\ \hline 21155 \\ 211550 \\ \hline 232705 \end{array}$$

ix.
$$\begin{array}{r} 5674 \\ \times\ 77 \\ \hline 39718 \\ 397180 \\ \hline 436898 \end{array}$$

x.
$$\begin{array}{r} 1015 \\ \times\ 66 \\ \hline 6090 \\ 60900 \\ \hline 66990 \end{array}$$

xi.
$$\begin{array}{r} 8315 \\ \times\ 28 \\ \hline 66520 \\ 166300 \\ \hline 232820 \end{array}$$

xii.
$$\begin{array}{r} 9126 \\ \times\ 36 \\ \hline 54756 \\ 273780 \\ \hline 328536 \end{array}$$

2. Solve the following word problems.

i.
$$\begin{array}{r} 9250 \\ \times\ 48 \\ \hline 74000 \\ 370000 \\ \hline 444000 \end{array}$$

Asad saves Rs.444,000 in 48 months.

ii.
$$\begin{array}{r} 4526 \\ \times\ 75 \\ \hline 22630 \\ 316820 \\ \hline 339450 \end{array}$$

There are total 339,450 books in the library.

iii.
$$\begin{array}{r} 3625 \\ \times\ 63 \\ \hline 10875 \\ 217500 \\ \hline 228375 \end{array}$$

There are 228,375 oranges altogether.

iv.
$$\begin{array}{r} 4350 \\ \times\ 96 \\ \hline 26100 \\ 391500 \\ \hline 417600 \end{array}$$

Rs. 417,600 is paid to all workers every week.

EXERCISE 1.6

1. Solve the following.

i
$$\begin{array}{r} 21 \\ 9\overline{)189} \\ -18 \\ \hline 9 \\ -9 \\ \hline 0 \end{array}$$

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

iii
$$\begin{array}{r} 11 \\ 40\overline{)445} \\ -40 \\ \hline 45 \\ -40 \\ \hline 5 \end{array}$$

iv
$$\begin{array}{r} 64 \\ 14\overline{)896} \\ -84 \\ \hline 56 \\ -56 \\ \hline 0 \end{array}$$

v
$$\begin{array}{r} 14 \\ 6\overline{)84} \\ -6 \\ \hline 24 \\ -24 \\ \hline 0 \end{array}$$

vi
$$\begin{array}{r} 121 \\ 12\overline{)1455} \\ -12 \\ \hline 25 \\ 24 \\ \hline 15 \\ 12 \\ \hline 3 \end{array}$$

vii
$$\begin{array}{r} 701 \\ 12\overline{)8423} \\ -84 \\ \hline 23 \\ -12 \\ \hline 11 \end{array}$$

viii
$$\begin{array}{r} 151 \\ 30\overline{)4552} \\ -30 \\ \hline 155 \\ -150 \\ \hline 52 \\ -30 \\ \hline 22 \end{array}$$

2. Solve the following.

i 1449 ÷ 50
$$\begin{array}{r} 28 \\ 50\overline{)1449} \\ -100 \\ \hline 449 \\ -400 \\ \hline 49 \end{array}$$

ii 5050 ÷ 36
$$\begin{array}{r} 140 \\ 36\overline{)5050} \\ -36 \\ \hline 145 \\ -144 \\ \hline 10 \end{array}$$

iii 2525 ÷ 69
$$\begin{array}{r} 36 \\ 69\overline{)2525} \\ -207 \\ \hline 455 \\ -414 \\ \hline 41 \end{array}$$

iv 9517 ÷ 25
$$\begin{array}{r} 380 \\ 25\overline{)9517} \\ -75 \\ \hline 201 \\ -200 \\ \hline 17 \end{array}$$

v 8421 ÷ 47
$$\begin{array}{r} 179 \\ 47\overline{)8421} \\ -47 \\ \hline 372 \\ -329 \\ \hline 431 \\ -423 \\ \hline 8 \end{array}$$

vi 5807 ÷ 85
$$\begin{array}{r} 68 \\ 85\overline{)5807} \\ -510 \\ \hline 707 \\ -680 \\ \hline 27 \end{array}$$

vii 6084 ÷ 3

```
  2 0 2 8
3)6 0 8 4
 -6
  0 8
 -  6
  2 4
  2 4
    0
```

viii 6125 ÷ 10

```
    6 1 2
10)6 1 2 5
  -6 0
    1 2
  - 1 0
      2 5
    - 2 0
        5
```

3. Solve the following word problems.

i *If price of 8 packets of pens is Rs. 9856 then find:*
(a) Price of one packet. (b) Price of 12 packets.

(a)

```
   1 2 3 2
8)9 8 5 6
 -8
  1 8
 -1 6
    2 5
  - 2 4
      1 6
    - 1 6
        0
```

Price of 1 packet is Rs. 1,232.

(b)

```
  1 2 3 2
  × 1 2
  2 4 6 4
1 2 3 2 0
1 4 7 8 4
```

Price of 12 packets is Rs. 14,784.

ii *45 oranges are placed in 1 box. How many boxes are needed for 8500 oranges and how many oranges will be left?*

```
    1 8 8
45)8 5 0 0
  -4 5
    4 0 0
  -3 6 0
    4 0 0
  - 3 6 0
      4 0
```

188 boxes are needed for 8500 oranges and 40 oranges will be left.

iii A motorbike can run 1350 km in 25 hours. How many kilometres can it run in one hour?

$$
\begin{array}{r}
54 \\
25\overline{)1350} \\
-125 \\
\hline
100 \\
-100 \\
\hline
0
\end{array}
$$

The motorbike can run 54km in one hour.

iv a

$$
\begin{array}{r}
\overset{①}{2}\ \overset{①}{2}\ \overset{①}{4}\ \overset{①}{8}\ 6 \\
+\ 2\ 8\ 5\ 6\ 7 \\
\hline
5\ 1\ 0\ 5\ 3
\end{array}
$$

Total 51,053 people visited Safari Park in two weeks.

b

$$
\begin{array}{r}
2\ 8\ \overset{4}{\cancel{5}}\ \overset{①}{6}\ 7 \\
-\ 2\ 2\ 4\ 8\ 6 \\
\hline
6\ 0\ 8\ 1
\end{array}
$$

In the first week 6081 less people visited the park.

v a

$$
\begin{array}{r}
1\ 3\ 9 \\
\times\ \ 4\ 6 \\
\hline
8\ 3\ 4 \\
+5\ 5\ 6\ 0 \\
\hline
6\ 3\ 9\ 4
\end{array}
$$

Total donuts baked = $\overset{5}{\cancel{6}}\ \overset{①}{3}\ 9\ 4$

Donuts sold = $-\ 3\ 4\ 1\ 4$

Donuts left = $2\ 9\ 8\ 0$

There were 2980 donuts left.

b

$$
\begin{array}{r}
70 \\
42\overline{)2980} \\
-294 \\
\hline
40
\end{array}
$$

There were 70 donuts in each jar with 40 donuts left.

vi a

Hadith books = $\overset{①}{6}\ 7\ 3\ 9$

Language books = $+\ 4\ 3\ 4\ 0$

Total no. of books = $1\ 1\ 0\ 7\ 9$

There are 11,079 books altogether in the library.

b Hadith books = 6 $^{6}\cancel{7}$ ① 3 9

Language books = − 4 3 4 0

Difference of books = 2 3 9 9

There are 2399 more Hadith books than language books.

c

$$\begin{array}{r} 461 \\ 24\overline{)11079} \\ -\ 96 \\ \hline 147 \\ -144 \\ \hline 39 \\ -\ 24 \\ \hline 15 \end{array}$$

There are 461 books in each rack and 15 books will be left.

1.6 Number Patterns

EXERCISE 1.7

1. Write next four terms of the following number patterns.

i 2, 5, 8, 11, 14, 17, 20

ii 7, 11, 15, 19, 23, 27, 31

iii 9, 15, 21, 27, 33, 39, 45

iv 12, 20, 28, 36, 44, 52, 60

v 14, 23, 32, 41, 50, 59, 68

vi 100, 97, 94, 91, 88, 85, 82

2. State the pattern rule of the following number patterns.

i 0, 7, 14, 21, Adding 7

ii 5, 13, 21, 29, Adding 8

iii 35, 32, 29, 26, Subtracting 3

iv 910, 810, 710, 610, Subtracting 100

3. Complete the number chart of 7 rows and 7 columns (as shown below) find:

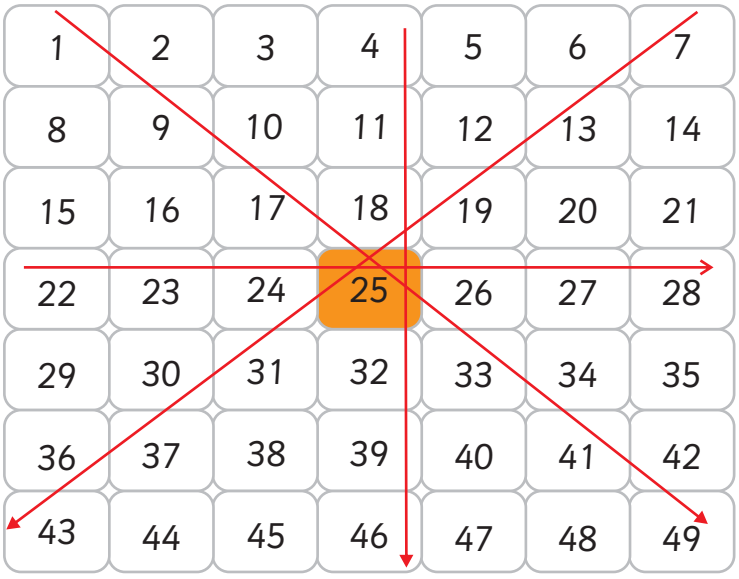
a. The number in the middle coloured block.

25

b. The four pattern rules observed in the chart keeping this number in the middle.

(Note: First one has been done for you.)

1. **Add: 6**
2. Add 8
3. Add 7
4. Add: 1



4. Observe the tables given below and write the rule of pattern.

a

Weeks	Weight of a fish
1	409
2	609
3	809
4	1009
5	1209

Rule of Pattern: Adding 200

b

Boxes of Chocolates	Total number of chocolates
1	10
2	20
3	30
4	40
5	50

Rule of Pattern: Adding 10

Unit 2

Factors and Multiples

Divisibility Rules

EXERCISE 2.1

1. Test the divisibility of the following numbers and tick (✓) in the given circles.

	Number	Divisible by 2	Divisible by 3	Divisible by 5	Divisible by 10
i	11548	✓			
ii	28460	✓		✓	✓
iii	43445			✓	
iv	62060	✓		✓	✓

Prime or Composite Numbers

EXERCISE 2.2

1. Determine whether the given numbers are prime (P) or composite (C).

	Numbers	P / C		Numbers	P / C
i	15	C	ii	95	C
iii	23	P	iv	64	C

2. Write all the prime numbers between 1 and 50.

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43 and 47.

3. Write all the composite numbers between 40 and 80.

40, 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, 80

Factors and Multiples

EXERCISE 2.3

1. Find all the factors of the following numbers.

i. 42 — 1,2,3,6,7,14,21,and 42

ii. 6 — 1,2,3 and 6

iii. 18 — 1,2,3,6,9 and 18

iv. 40 — 1,2,4,5,8,10,20 and 40

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

i. 2 — 2,4,6,8,10,12,14,16,18,20

ii. 7 — 7,14,21,28,35,42,49,56,63,70

iii. 8 — 8,16,24,32,40,48,56,64,72,80

iv. 5 — 5,10,15,20,25,30,35,40,45,50

Prime Factorization

EXERCISE 2.4

1. Find the prime factors of the following.

i. 12

2	12
2	6
3	3
	1

Prime factors of 12 = 2 x 2 x 3

ii. 18

2	18
3	9
3	3
	1

Prime factors of 18 = 2 x 3 x 3

iii. 10

2	10
5	5
	1

Prime factors of 10 = 2 x 5

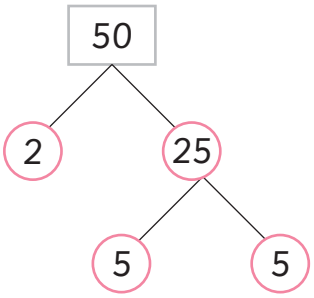
iv. 45

3	45
3	15
5	5
	1

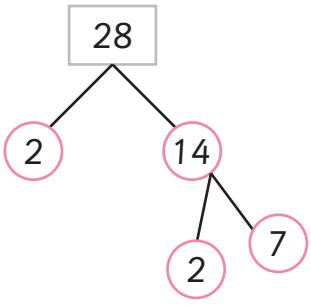
Prime factors of 45 = 3 x 3 x 5

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

i



ii



Prime factorization of 50: 2 x 5 x 5

Prime factors of 50 are: 2, 5 and 5

Prime factorization of 28: 2 x 2 x 7

Prime factors of 28 are: 2, 2 and 7

Common Factors and Multiples

EXERCISE 2.5

1. Write the following numbers in prime factors using prime factorization.

i 8

2	8
2	4
2	2
	1

Prime factors of 8 are 2, 2 and 2.

ii 20

5	20
2	4
2	2
	1

Prime factors of 20 are 5, 2 and 2.

iii 45

3	45
3	15
5	5
	1

Prime factors of 45 are 3, 3 and 5.

iv 36

2	36
2	18
3	9
3	3
	1

Prime factors of 36 are 2, 2, 3 and 3.

2. Find the common factors of the following numbers.

i 9 and 12

Factors of 9: 1, 3, 9

Factors of 12: 1, 2, 3, 4, 6, 12

Common factors = 1,3

ii 21 and 42

Factors of 21: 1, 3, 7, 21

Factors of 42: 1, 2, 3, 6, 7, 21, 42

Common factors = 1,3,7,21

iii 15, 25 and 35

Factors of 15: 1 , 3 , 5 , 15
Factors of 25: 1 , 5 , 25 ,
Factors of 35: 1 , 5 , 7 , 35
Common Factors = 1,5

iv 12, 36 and 48

Factors of 12: 1 , 2 , 3 , 4 , 6 , 12
Factors of 36: 1 , 2 , 3 , 4 , 6 , 9 , 12 , 36
Factors of 48: 1 , 2 , 3 , 4 , 6 , 8 , 12 , 16 , 24 , 48
Common Factors = 1,2,3,4,6,12

3. Find the common multiples of the following numbers.

i 6 and 12

Multiples of 6: 6 , 12 , 18 , 24 , 30 , 36 , 42 , 48 , 54 , 60 ...
Multiples of 12: 12 , 24 , 36 , 48 , 60 , 72 , ...

ii 10 and 15

Multiples of 10: 10 , 20 , 30 , 40 , 50 , 60 , 70 , 80 , 90, ...
Multiples of 15: 15 , 30 , 45 , 60 , 75 , 90 , ...

iii 14, 7 and 28

Multiples of 14: 14 , 28 , 42 , 56 , 70 , 84 , ...
Multiples of 7: 7 , 14 , 21 , 28 , 35 , 42 , 49 , 56 , ...
Multiples of 28: 28 , 56 , 84 , 112 , ...

iv 5, 15 and 30

Multiples of 5: 5 , 10 , 15 , 20 , 25 , 30 , 35 , 40 , 45 , 50 , 55 , 60 , ...
Multiples of 15: 15 , 30 , 45 , 60 , 75 , ...
Multiples of 30: 30 , 60 , 90 , 120 , ...

4. Find the first ten multiples of given numbers and write the common multiples.

i

2	2	4	6	8	10	12	14	16	18	20
4	4	8	12	16	20	24	28	32	36	40

Common Multiples: 4 , 8 , 12 , 16 , 20

ii

5	5	10	15	20	25	30	35	40	45	50
10	10	20	30	40	50	60	70	80	90	100

Common Multiples: 10, 20, 30, 40, 50

Unit 3

Fractions

Like and Unlike Fractions

EXERCISE 3.1

Write "L' for like and "U" for unlike fractions given below.

i. $\frac{1}{4}, \frac{2}{4}, \frac{3}{4}$ — L

ii. $\frac{1}{2}, \frac{4}{5}, \frac{6}{7}$ — U

iii. $\frac{3}{5}, \frac{2}{7}, \frac{7}{2}$ — U

iv. $\frac{2}{6}, \frac{5}{6}, \frac{4}{6}$ — L

Comparing and Ordering Unlike Fractions

EXERCISE 3.2

1. *Use symbols <, > or = to compare the fractions given below.*

i. $\frac{7}{9} < \frac{7}{8}$

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

$\frac{7}{8} = \frac{7 \times 9}{8 \times 9} = \frac{63}{72}$

ii. $\frac{3}{4} < \frac{7}{8}$

$\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$

iii. $\frac{3}{10} > \frac{2}{11}$

$\frac{3}{10} = \frac{3 \times 11}{10 \times 11} = \frac{33}{110}$

$\frac{2}{11} = \frac{2 \times 10}{11 \times 10} = \frac{20}{110}$

iv. $\frac{5}{9} = \frac{15}{27}$

$\frac{5}{9} = \frac{5 \times 3}{9 \times 3} = \frac{15}{27}$

v. $\frac{1}{3} > \frac{2}{10}$

$\frac{1}{3} = \frac{1 \times 10}{3 \times 10} = \frac{10}{30}$

$\frac{2}{10} = \frac{2 \times 3}{10 \times 3} = \frac{6}{30}$

vi. $\frac{6}{8} > \frac{1}{4}$

$\frac{1}{4} = \frac{1 \times 2}{4 \times 2} = \frac{2}{8}$

vii. $\frac{3}{4} < \frac{5}{4}$

viii. $\frac{1}{2} > \frac{1}{4}$

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

ix. $\frac{9}{3} > \frac{7}{5}$

$\frac{9}{3} = \frac{9 \times 5}{3 \times 5} = \frac{45}{15}$

$\frac{7}{5} = \frac{7 \times 3}{5 \times 3} = \frac{21}{15}$

2. Compare and order the given fractions in ascending and descending order.

i $\frac{3}{5}, \frac{2}{10}, \frac{5}{15}$

$\frac{3}{5} = \frac{3 \times 6}{5 \times 6} = \frac{18}{30}$

$\frac{2}{10} = \frac{2 \times 3}{10 \times 3} = \frac{6}{30}$

$\frac{5}{10} = \frac{5 \times 2}{15 \times 2} = \frac{10}{30}$

Ascending order

$\frac{2}{10} ; \frac{5}{15} ; \frac{3}{5}$

Descending order

$\frac{3}{5} ; \frac{5}{15} ; \frac{2}{10}$

ii $\frac{5}{4}, \frac{2}{6}, \frac{4}{8}$

$\frac{5}{4} = \frac{5 \times 6}{4 \times 6} = \frac{30}{24}$

$\frac{2}{6} = \frac{2 \times 4}{6 \times 4} = \frac{8}{24}$

$\frac{4}{8} = \frac{4 \times 3}{8 \times 3} = \frac{12}{24}$

Ascending order

$\frac{2}{6} ; \frac{4}{8} ; \frac{5}{4}$

Descending order

$\frac{5}{4} ; \frac{4}{8} ; \frac{2}{6}$

iii $\frac{3}{6}, \frac{2}{9}, \frac{1}{4}$

$\frac{3}{6} = \frac{3 \times 6}{6 \times 6} = \frac{18}{36}$

$\frac{2}{9} = \frac{2 \times 4}{9 \times 4} = \frac{8}{36}$

$\frac{1}{4} = \frac{1 \times 9}{4 \times 9} = \frac{9}{36}$

Ascending order

$\frac{2}{9} ; \frac{1}{4} ; \frac{3}{6}$

Descending order

$\frac{3}{6} ; \frac{1}{4} ; \frac{2}{9}$

iv $\frac{5}{10}, \frac{2}{3}, \frac{7}{12}$

$\frac{5}{10} = \frac{5 \times 12}{10 \times 12} = \frac{60}{120}$

$\frac{2}{3} = \frac{2 \times 40}{3 \times 40} = \frac{80}{120}$

$\frac{7}{12} = \frac{7 \times 10}{12 \times 10} = \frac{70}{120}$

Ascending order

$\frac{5}{10} ; \frac{7}{12} ; \frac{2}{3}$

Descending order

$\frac{2}{3} ; \frac{7}{12} ; \frac{5}{10}$

v $\frac{1}{8}, \frac{2}{3}, \frac{4}{9}$

$\frac{1}{8} = \frac{1 \times 9}{8 \times 9} = \frac{9}{72}$

$\frac{2}{3} = \frac{2 \times 24}{3 \times 24} = \frac{48}{72}$

$\frac{4}{9} = \frac{4 \times 8}{9 \times 8} = \frac{32}{72}$

Ascending order

$\frac{1}{8} ; \frac{4}{9} ; \frac{2}{3}$

Descending order

$\frac{2}{3} ; \frac{4}{9} ; \frac{1}{8}$

vi $\frac{3}{4}, \frac{1}{3}, \frac{6}{7}$

$\frac{3}{4} = \frac{3 \times 21}{4 \times 21} = \frac{63}{84}$

$\frac{1}{3} = \frac{1 \times 28}{3 \times 28} = \frac{28}{84}$

$\frac{6}{7} = \frac{6 \times 12}{7 \times 12} = \frac{72}{84}$

Ascending order

$\frac{1}{3} ; \frac{3}{4} ; \frac{6}{7}$

Descending order

$\frac{6}{7} ; \frac{3}{4} ; \frac{1}{3}$

Simplification of Fractions

EXERCISE 3.3

1. Simplify the following fractions into its lowest form.

i $\frac{4}{18}$

First, find the common factor of 4 and 18.

Factors of 4: 1 , 2 , 4

Factors of 18: 1 , 2 , 3 , 6

Then, divide the numerator and denominator by common factor.

$$\frac{4}{18} = \frac{4 \div 2}{18 \div 2} = \frac{2}{9}$$

Now, there is no common factor of 2 and 9. So, $\frac{2}{9}$ is the lowest form of $\frac{4}{18}$.

ii $\frac{15}{25}$

First, find the common factor of 15 and 25.

Factors of 15: 1 , 3 , 5

Factors of 25: 1 , 5

Then, divide the numerator and denominator by common factor.

$$\frac{15}{25} = \frac{15 \div 5}{25 \div 5} = \frac{3}{5}$$

Now, there is no common factor of 3 and 5. So, $\frac{3}{5}$ is the lowest form of $\frac{15}{25}$.

iii $\frac{14}{20}$

First, find the common factor of 14 and 20.

Factors of 14: 1 , 2

Factors of 20: 1 , 2

Then, divide the numerator and denominator by common factor.

$$\frac{14}{20} = \frac{14 \div 2}{20 \div 2} = \frac{7}{10}$$

Now, there is no common factor of 7 and 10. So, $\frac{7}{10}$ is the lowest form of $\frac{14}{20}$.

iv $\frac{17}{34}$

First, find the common factor of 17 and 34.

Factors of 17: 1 , 17

Factors of 34: 1 , 17 , 34

Then, divide the numerator and denominator by common factor.

$$\frac{17}{34} = \frac{17 \div 17}{34 \div 17} = \frac{1}{2}$$

Now, there is no common factor of 1 and 2. So, $\frac{17}{34}$ *is the lowest form of* $\frac{17}{34}$.

v $\frac{21}{42}$

First, find the common factor of 21 and 42.

Factors of 21: 1 , 3 , 21

Factors of 42: 1 , 3 , 21 , 42

Then, divide the numerator and denominator by common factor.

$$\frac{21}{42} = \frac{21 \div 21}{42 \div 21} = \frac{1}{2}$$

Now, there is no common factor of 1 and 2. So, $\frac{1}{2}$ *is the lowest form of* $\frac{21}{42}$.

vi $\frac{4}{20}$

First, find the common factor of 4 and 20.

Factors of 4: 1 , 2 , 4

Factors of 20: 1 , 2 , 4

Then, divide the numerator and denominator by common factor.

$$\frac{4}{20} = \frac{4 \div 4}{20 \div 4} = \frac{1}{5}$$

Now, there is no common factor of 1 and 5. So, $\frac{1}{5}$ *is the lowest form of* $\frac{4}{20}$.

vii $\frac{8}{64}$

First, find the common factor of 8 and 64.

Factors of 8: 1 , 2 , 4 , 8

Factors of 64: 1 , 2 , 4 , 8 , 16 , 32 , 64

Then, divide the numerator and denominator by common factor.

$$\frac{8}{64} = \frac{8 \div 8}{64 \div 8} = \frac{1}{8}$$

Now, there is no common factor of 1 and 8. So, $\frac{1}{8}$ is the lowest form of $\frac{8}{64}$.

viii $\frac{30}{45}$

First, find the common factor of 30 and 45.

Factors of 30: 1 , 2 , 3 , 5 , 6 , 10 , 15 , 30

Factors of 45: 1 , 3 , 5 , 9 , 15 , 45

Then, divide the numerator and denominator by common factor.

$$\frac{30}{45} = \frac{30 \div 15}{45 \div 15} = \frac{2}{3}$$

Now, there is no common factor of 2 and 3. So, $\frac{2}{3}$ is the lowest form of $\frac{30}{45}$.

Types of Fractions

EXERCISE 3.4

1. Write "I" for improper fraction, "P" for proper fraction and "U" for unit fraction.

i $\frac{4}{7}$ P ii $\frac{9}{8}$ I iii $\frac{8}{25}$ P iv $\frac{25}{8}$ I

v $\frac{6}{4}$ I vi $\frac{3}{5}$ P vii $\frac{24}{49}$ P viii $\frac{1}{31}$ U

2. Convert the following improper fractions into mixed fractions.

i $\frac{19}{7}$

$$7\overline{)19}\ 2,\quad -14,\quad 5$$

So, $\frac{19}{7} = 2\frac{5}{7}$

ii $\frac{17}{3}$

$$3\overline{)17}\ 5,\quad -15,\quad 2$$

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

iii $\frac{25}{9}$

$$9\overline{)25}\ 2,\quad -18,\quad 7$$

So, $\frac{25}{9} = 2\frac{7}{9}$

iv $\frac{58}{5}$

$$5\overline{)58}\ 11,\quad -55,\quad 3$$

So, $\frac{58}{5} = 11\frac{3}{5}$

3. Convert the following mixed fractions into improper fractions.

i $3\frac{1}{3}$ ii $3\frac{1}{4}$ iii $4\frac{5}{9}$ iv $6\frac{2}{3}$

$(3 \times 3) + 1 = 10$ $(3 \times 4) + 1 = 13$ $(9 \times 4) + 5 = 41$ $(3 \times 6) + 2 = 20$

So, $3\frac{1}{3} = \frac{10}{3}$ So, $3\frac{1}{4} = \frac{13}{4}$ So, $4\frac{5}{9} = \frac{41}{9}$ So, $6\frac{2}{3} = \frac{20}{3}$

Addition and Subtraction of Like Fractions

EXERCISE 3.5

1. Solve the following.

i $\frac{1}{7} + \frac{5}{7} = \frac{6}{7}$ ii $\frac{5}{14} + \frac{3}{14} = \frac{8}{14}$ iii $\frac{5}{5} + \frac{4}{5} = \frac{9}{5}$

iv $\frac{8}{12} + \frac{2}{12} = \frac{10}{12}$ v $\frac{8}{11} + \frac{3}{11} = \frac{11}{11}$ vi $\frac{6}{9} + \frac{5}{9} = \frac{11}{9}$

2. Subtract the smallest fractions from the greatest fractions.

i $\frac{6}{2}$, $\frac{3}{2}$

$= \frac{6-3}{2}$

$= \frac{3}{2}$

ii $\frac{3}{5}$, $1\frac{4}{5}$

$= \frac{3}{5}$, $\frac{9}{5}$

$= \frac{9-3}{5} = \frac{6}{5}$

iii $\frac{4}{8}$, $\frac{1}{8}$

$= \frac{4-1}{8}$

$= \frac{3}{8}$

iv $\frac{9}{12}$, $\frac{5}{12}$

$= \frac{9-5}{12}$

$= \frac{4}{12}$ or $\frac{1}{3}$

v $3\frac{1}{2}$, $1\frac{1}{2}$

$= \frac{7}{2}$, $\frac{3}{2}$

$= \frac{7-3}{2} = \frac{4}{2}$ or $\frac{2}{1}$

vi $\frac{2}{6}$, $\frac{1}{6}$

$= \frac{2-1}{6}$

$= \frac{1}{6}$

3. Saima used $4\frac{1}{2}$ m cloth to stitch her shirt and $\frac{5}{2}$ m cloth to stitch her gown. How much cloth did she use altogether?

Cloth used to stitch shirt $= \frac{9}{2}$ m

Cloth used to stitch gown $= \frac{5}{2}$ m

Cloth used altogether $= \frac{9}{2}\text{ m} + \frac{5}{2}\text{ m}$

$= \frac{9+5}{2} = \frac{14}{2}$ m

4. Arslan bought two ribbons. The total length of two ribbons is $\frac{14}{6}$ m. If one of the ribbons is $1\frac{2}{6}$ m, find the length of the other ribbon.

Total length of two ribbons $= \frac{14}{6}$ m

Length of one ribbon $= 1\frac{2}{6}\text{ m} = \frac{8}{6}$ m

Length of other ribbon $= \frac{14}{6}\text{ m} - \frac{8}{6}\text{ m}$

$= \frac{14-8}{6}$

$= \frac{6}{6}$

$= 1$ m

5. The mass of the onions is $7\frac{1}{10}$ kg and the mass of the carrots is $\frac{8}{10}$ kg. Find the total mass of both vegetables. Also, find the difference in their masses.

Mass of onion $= 7\frac{1}{10}\text{ kg} = \frac{71}{10}\text{ kg}$

Mass of carrots $= \frac{8}{10}$ kg

Total mass of both vegetables $= \frac{71}{10}\text{ kg} + \frac{8}{10}\text{ kg}$

$= \frac{71 \times 1 \times 8 \times 1}{10}$

$= \frac{71+8}{30} = \frac{79}{10}$ kg

Difference in mass of both vegetables

$= \frac{71}{10}\text{ kg} - \frac{8}{10}\text{ kg}$

$= \frac{71 \times 1 - 8 \times 1}{10}$

$= \frac{71-8}{10} = \frac{63}{10}$ kg

Multiplication and Divisionof Fractions

EXERCISE 3.6

1. Solve the following.

i $\frac{3}{6} \times 4$

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

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

ii $\frac{3}{8} \times 6$

$= \frac{3 \times 6}{8}$

$= \frac{18}{8} = \frac{9}{4}$

iii $3\frac{2}{4} \times 7$

$= \frac{14}{4} \times 7$

$= \frac{14 \times 7}{4}$

$= \frac{98}{4} = \frac{49}{2}$

iv $2\frac{1}{4} \times \frac{5}{6}$

$= \frac{9}{4} \times \frac{5}{6}$

$= \frac{45}{24} = \frac{15}{8}$

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

v $3\frac{2}{5} \div 6$

$= \frac{17}{5} \div \frac{6}{1}$

$= \frac{17}{5} \times \frac{1}{6}$

$= \frac{17 \times 1}{5 \times 6}$

$= \frac{17}{30}$

vi $4\frac{4}{6} \div 8$

$= \frac{28}{6} \div \frac{8}{1}$

$= \frac{28}{6} \times \frac{1}{8}$

$= \frac{28 \times 1}{6 \times 8}$

$= \frac{28}{48} = \frac{7}{12}$

vii $\frac{6}{3} \div 3$

$= \frac{6}{3} \div \frac{3}{1}$

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

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

$= \frac{6}{9} = \frac{2}{3}$

viii $\frac{1}{8} \div 4$

$= \frac{1}{8} \div \frac{4}{1}$

$= \frac{1}{8} \times \frac{1}{4}$

$= \frac{1}{32}$

2. Solve the following problems.

i The cost of a pack of chips is Rs. $1\frac{4}{8}$. What is the cost of 6 such packs?

Piece of 1 pack of chips $= \text{Rs. } 1\frac{4}{8} = \text{Rs.} \frac{12}{8}$

Cost of 6 pack of chips $= \text{Rs.} \frac{12}{8} \times 6$

$= \frac{12}{8} \times \frac{6}{1}$

$= \frac{72}{8} = \text{Rs. } 9$

ii Ahmad has a ribbon $6\frac{3}{2}$ m long. Find the length of 8 such ribbons.

Length of 1 ribbon $= 6\frac{3}{2} = \text{Rs.} \frac{15}{8}$

Length of 8 such ribbons $= \frac{15}{8}\text{m} \times \frac{8}{1}$

$= \frac{15 \times 8}{2 \times 1}$

$= \frac{120}{2} = 60\text{m}$

iii A $6\frac{2}{3}$ meters long wire is to be divided equally into 3 pieces. What will be length of each piece?

Length of wire $= 6\frac{2}{3}\text{ m} = \frac{20}{3}\text{ m}$

Divided into pieces $= 3$

Length of each pieces $= \frac{20}{3} \div 3$

$= \frac{20}{3} \times \frac{1}{3}$

$= \frac{20}{9}\text{ m}$

Unit 4

Decimals

Decimals (Tenths, Hundredths and Thousandths)

EXERCISE 4.1

1. Write the following fractions as decimals and decimals as fractions.

i $0.5 = \frac{5}{10}$

ii $0.12 = \frac{12}{100}$

iii $0.423 = \frac{423}{1000}$

iv $1.95 = \frac{195}{100}$

v $2\frac{4}{10} = \frac{24}{10} = 2.4$

vi $61\frac{154}{1000} = \frac{61,154}{1,000} = 61.154$

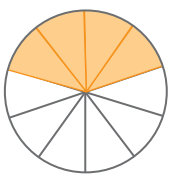
vii twenty-three hundredths $= \frac{23}{100}$

viii five tenths $= \frac{5}{10}$

ix eleven tenths $= \frac{11}{10}$

x two hundred and five thousandths $= \frac{205}{1000}$

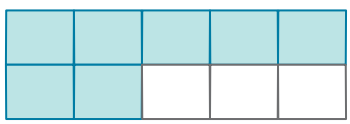
2. Represent the coloured portion of each figure in decimal and fraction form. Also write it in words.

i 

Fraction: $\frac{4}{10}$

Decimal: 0.4

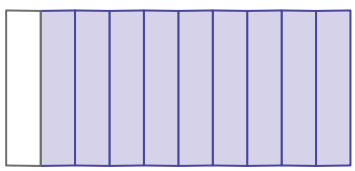
Words: zero point four

ii 

Fraction: $\frac{7}{10}$

Decimal: 0.7

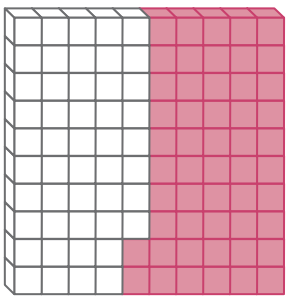
Words: zero point seven

iii 

Fraction: $\frac{9}{10}$

Decimal: 0.9

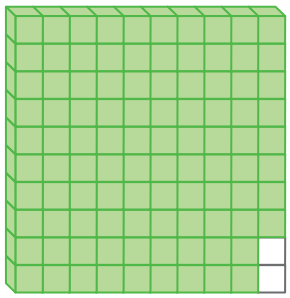
Words: zero point nine

iv 

Fraction: $\frac{52}{100}$

Decimal: 0.52

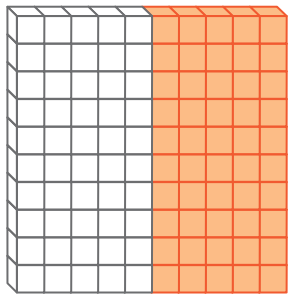
Words: Zero point five two

v 

Fraction: $\frac{98}{100}$

Decimal: 0.98

Words: Zero point nine eight

vi 

Fraction: $\frac{50}{100}$

Decimal: 0.50

Words: Zero point five zero

3. Write the place values of the underlined digits.

i	1.6	ii	28.15	iii	83.112	iv	27.892
	Tenths 6		Hundredths 5		Tens 8 Thousandths 2		Ones 7 Thousandths 2
v	0.71	vi	40.002	vii	21.222	viii	87.909
	Tenths 7		Hundredths 0		Tenths 2		Tens 8 Thousandth 9

4. Fill in the blanks.

i 9.25

a '9' is at Ones place, the place value of 9 is: 9 × 1 = 9

b '2' is at Tenths place, the place value of 2 is: 2 × 0.1 = 0.2

c '5' is at Hundredths place, the place value of 5 is: 5 × 0.01 = 0.05

Conversion of Fractions and Decimals

EXERCISE 4.2

1. Write the following fractions as decimals.

i	$\frac{6}{10}$	ii	$\frac{24}{10}$	iii	$\frac{86}{100}$	iv	$\frac{326}{1000}$	v	$\frac{47}{10}$	vi	$\frac{3}{100}$	vii	$\frac{285}{1000}$
	0.6		2.4		0.86		0.326		4.7		0.03		0.285

2. Write the following decimals as fractions.

i	0.73	ii	0.9	iii	7.9	iv	4.62	v	19.11	vi	3.954	vii	9.148
	$\frac{73}{100}$		$\frac{9}{10}$		$\frac{79}{10}$		$\frac{462}{100}$		$\frac{1911}{100}$		$\frac{3954}{1000}$		$\frac{9148}{1000}$

Addition and Subtraction of Decimals

EXERCISE 4.3

1. Solve the following.

i	3.4 + 5.4 8.8	ii	① 3.54 + 5.38 8.92	iii	7.56 + 4.23 11.79	iv	5.85 + 2.13 7.98

v

$$\begin{array}{r} 0.9 \\ -\ 0.5 \\ \hline 0.4 \end{array}$$

vi

$$\begin{array}{r} {}^{8}\cancel{9}.{}^{17}\cancel{7}5 \\ -\ 6.84 \\ \hline 2.91 \end{array}$$

vii

$$\begin{array}{r} 8.{}^{4}\cancel{5}{}^{14}\cancel{4} \\ -\ 3.27 \\ \hline 5.27 \end{array}$$

viii

$$\begin{array}{r} 9.28 \\ -\ 6.10 \\ \hline 3.18 \end{array}$$

2. Amna bought 5.21 metres of cloth. Ayesha bought 3.27 metres of cloth. How many metres of cloth did they buy althogether?

Cloth Amna bought = 5.21

Cloth Ayesha bought = + 3.27

Cloth bought altogether = 8.48

3. Hamid bought 8.35kg apples and 2.15kg peaches.
(a) Find the total mass of apples and peaches.
(b) Find the difference between mass of apples and peaches

(a) Weight of apples = 8.35 kg

Weight of peaches = + 2.15 kg

Total mass = 10.50 kg

(b) Weight of apples = 8.35 kg

Weight of peaches = − 2.15 kg

Difference = 6.20 kg

Multiplication and Division of Decimals

EXERCISE 4.4

1. Solve the following.

i) 6.8 × 10

$$\begin{array}{r} 6.8 \\ \times\ 10 \\ \hline 00 \\ 680 \\ \hline 68.0 \end{array}$$

ii) 3.7 × 100

$$\begin{array}{r} 3.7 \\ \times\ 100 \\ \hline 00 \\ 00\times \\ 37\times\times \\ \hline 370.0 \end{array}$$

iii) 7.1 × 100

$$\begin{array}{r} 7.1 \\ \times\ 100 \\ \hline 00 \\ 00\times \\ 71\times\times \\ \hline 710.0 \end{array}$$

iv) 0.5 × 1000

$$\begin{array}{r} 0.5 \\ \times\ 100 \\ \hline 00 \\ 00\times \\ 5\times\times \\ \hline 500 \end{array}$$

v $2.8 \div 2$

$$
\begin{array}{r}
1.4 \\
2\overline{)\,2.8} \\
-\,2 \\
\hline
\quad 8 \\
-\,8 \\
\hline
\quad 0
\end{array}
$$

vi $2.7 \div 9$

$$
\begin{array}{r}
0.3 \\
9\overline{)\,2.7} \\
-\,2.7 \\
\hline
\quad 0
\end{array}
$$

vii $2.4 \div 4$

$$
\begin{array}{r}
0.6 \\
4\overline{)\,2.4} \\
-\,2.4 \\
\hline
\quad 0
\end{array}
$$

viii $7.2 \div 6$

$$
\begin{array}{r}
1.2 \\
6\overline{)\,7.2} \\
-\,6 \\
\hline
\quad 1\,2 \\
-\,1\,2 \\
\hline
\quad 0
\end{array}
$$

2. *Saima uses 4.6 kg of flour to bake a cake. How much flour will she use to bake 10 such cakes?*

Flour used to bake 1 cake = 4.6 kg

Flour used to bake 10 cakes = × 10

$$
\begin{array}{r}
4.6\,\text{kg} \\
\times\ 10 \\
\hline
00 \\
46\ \times \\
\hline
46.0\,\text{kg}
\end{array}
$$

3. *The length of one piece of rope is 9.6m. Ali cuts this rope into 4 equal pieces.*

a) What will be the length of each piece?

b) If he will cut the rope into 2 equal pieces. What will be the length of each piece?

Length of one piece of rope = 9.6m

(a) Rope cut into 4 pieces = $9.6 \div 4 = 2.4$m (b) Rope cut into 2 pieces = $9.6 \div 2 = 4.8$m

$$
\begin{array}{r}
2.4 \\
4\overline{)\,9.6} \\
-\,8 \\
\hline
\quad 1\,6 \\
-\,1\,6 \\
\hline
\quad 0
\end{array}
$$

$$
\begin{array}{r}
4.8 \\
2\overline{)\,9.6} \\
-\,8 \\
\hline
\quad 1\,6 \\
-\,1\,6 \\
\hline
\quad 0
\end{array}
$$

4. Bilal solves 8 questions of mathematics in 8.8 minutes. How long does he take to solve 1 question?

Time took to solve 8 questions = 8.8 minutes

Time took to solve 1 question = 8.8 ÷ 8 = 1.1minute

$$
\begin{array}{r}
1.1 \\
8\overline{)\,8.8} \\
-\,8 \\
\hline
\,8 \\
-\,8 \\
\hline
\,0 \\
\hline
\end{array}
$$

Rounding off

EXERCISE 4.5

1. Round off the following whole numbers to the nearest 10, 100 and 1000.

		i 8962	ii 7454	iii 1111
Nearest	10	8960	7450	1110
Nearest	100	9000	7500	1100
Nearest	1000	9000	7000	1000

		iv 6578	v 6666	vi 5656
Nearest	10	6580	6670	5660
Nearest	100	6600	6700	5700
Nearest	1000	7000	7000	6000

2. Round off the following decimals to the nearest whole number.

i	ii	iii	iv	v	vi
4.5	53.2	9.9	4.3	1.8	86.88
5	53	10	4	2	87

Unit 5

Measurements
Length

EXERCISE 5.1

1. Complete the following:

i. 8 cm = 80 mm

ii. 8 cm 8 mm = 88 mm

iii. 54 km = 54000 m

iv. 28 m = 2800 cm

v. 16 m = 1600 cm

vi. 30 m 35 cm = 3035 cm

vii. 180 cm = 1800 mm

viii. 250 cm = 2500 mm

ix. 8 km = 8000 m

x. 10 km 112 m = 10112 m

Addition and Subtraction of Units of Length

EXERCISE 5.2

1. Solve the following.

i.
	44km	880m
+	33km	119m
	77km	999m

ii.
	19km	2mm
+	23km	6mm
	42km	8km

iii.
	51m	14cm
+	60m	18cm
	111m	32cm

iv.
	52cm	5mm
−	13cm	1mm
	39cm	4mm

v.
	31m	26cm
−	30m	24cm
	1m	2cm

vi.
	94km	124m
−	52km	106m
	42km	18m

2. Fazal walked 568m, 82cm and Asim walked 239m, 56cm. How much more distance was covered by Fazal than Asim? Convert the answer into centimetres.

Fazal walked	=	568m 82cm
Asim walked	=	− 239m 56cm
Difference	=	329m 26cm

Difference in cm = 329 × 100cm + 26cm
= 32900cm + 26cm
= 32926 cm

3. Sara bought 15m 185cm ribbon to tie her gifts. She used 12m 135cm of ribbon. How much ribbon is left with her?

Sara bought ribbon	=	15m 185cm
She used	=	− 12m 135cm
Ribbon left	=	3m 50cm

4. The distance between Asif's house and zoo is 16km 45m. He has covered 11 km 25 m. How much more distance will he to reach the zoo?

Distance between Asift's house and zoo	=	16km 45m
He covered	=	− 11km 25m
Distance left to reach zoo	=	5km 20m

Mass

EXERCISE 5.3

1. Convert the following into grams.

i) 6kg
= 6 × 1,000g
= 6,000g

ii) 12kg
= 12 × 1,000g
= 12,000g

iii) 15kg
= 15 × 1,000g
= 15,000g

iv) 75kg 12g
= 75 × 1,000g + 12g
= 75,012g

v) 52kg 600g
= 52 × 1,000g + 600g
= 52,600g

vi) 2.5kg
= 2 × 1,000g + 500g
= 2,500g

vii) 32kg 129g
= 32 × 1,000g + 129g
= 32,129g

viii) 17.8kg
= 17 × 1,000g + 800g
= 17,800g

2. Convert the following into milligrams.

i) 39g
= 39 × 1,000mg
= 39,000mg

ii) 8g
= 8 × 1,000mg
= 8,000mg

iii) 688g
= 688 × 1,000mg
= 688,000mg

iv) 2215g
= 2,215 × 1,000mg
= 2215,000mg

v) 62g 70mg
= 62 × 1,000mg + 70mg
= 62,070mg

vi) 145g 332mg
= 145 × 1,000mg + 332mg
= 145,332mg

vii) 99g 921mg
= 99 × 1,000mg + 921mg
= 99,921mg

viii) 271g 540mg
= 271g × 1,000mg + 540mg
= 271,540mg

EXERCISE 5.4

1. Solve the following.

i)
	23kg	44g
+	16kg	22g
	39kg	66g

ii)
	8kg	12g
+	9kg	49g
	17kg	61g

iii)
	130g	465mg
+	260g	132mg
	390g	597mg

iv)
	620g	800mg
–	410g	638mg
	210g	162mg

v)
	217g	519mg
–	103g	112mg
	114g	407mg

vi)
	321kg	998g
–	28kg	218g
	293kg	780g

2. A bag of rice weighs 80kg 500g.
A bag of sugar weighs 40kg 425g.
How much heavier is the bag of rice?

Weight of rice	=		80kg 500g
Weight of sugar	=	–	40kg 425g
Difference	=		40kg 75g

Bags of rice is 40kg 75g heavier than bag of sugar.

3. Mrs. Rahman bought 100kg 225g of rice and 200kg 50g of sugar. How much rice and sugar did she buy altogether?

Rice bought	=		100kg 225g
Sugar bought	=	+	200kg 50g
Bought altogether	=		300kg 275g

She bought 300kg 275g of rice and sugar altogether.

4. A bag of wheat weighs 525 kilogram. A second bag weighs 415 kilogram. What is the difference in their weight?

First bag of wheat	=	525kg
Second bag of wheat	=	− 415kg
Difference	=	110kg

Capacity

EXERCISE 5.5

1. Convert the following into millimetres.

i) $8l$
= 8 × 1,000ml
= 8,000ml

ii) $18l$
= 18 × 1,000ml
= 18000ml

iii) $86l$
= 86 × 1,000ml
= 86,000ml

iv) $418l$
= 418 × 1,000ml
= 418,000ml

v) $7l\ 37ml$
= 7 × 1,000ml + 37ml
= 7037ml

vi) $44l\ 720ml$
= 44 × 1,000ml + 720ml
= 44,720ml

vii) $63l\ 18ml$
= 63 × 1,000ml + 18ml
= 63,018ml

viii) $86l\ 348ml$
= 86 × 1,000ml + 348ml
= 86,348ml

Addition and Subtraction of Units of Capacity

EXERCISE 5.6

1. Solve the following.

i)
$$\begin{array}{rr} 5\ell & 219m\ell \\ + \ 3\ell & 348m\ell \\ \hline 8\ell & 567m\ell \end{array}$$

ii)
$$\begin{array}{rr} 6\ell & 143m\ell \\ + \ 12\ell & 728m\ell \\ \hline 18\ell & 871m\ell \end{array}$$

iii)
$$\begin{array}{rr} 13\ell & 482m\ell \\ + \ 8\ell & 211m\ell \\ \hline 21\ell & 693m\ell \end{array}$$

iv)
$$\begin{array}{rr} 88\ell & 69m\ell \\ - \ 23\ell & 19m\ell \\ \hline 65\ell & 50m\ell \end{array}$$

v)
$$\begin{array}{rr} 31\ell & 75m\ell \\ - \ 12\ell & 53m\ell \\ \hline 19\ell & 22m\ell \end{array}$$

vi)
$$\begin{array}{rr} 58\ell & 400m\ell \\ - \ 49\ell & 100m\ell \\ \hline 9\ell & 300m\ell \end{array}$$

Unit 6

Measurement: Time
Digital Clock

EXERCISE 6.1

1. Read the time on each of the following clocks and write the time in digits and in words.

i 

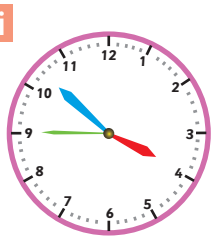
10 : 30 : 15

30 minutes 15 seconds past 10

ii 

8 : 20 : 60

20 minutes 60 seconds past 8

iii 

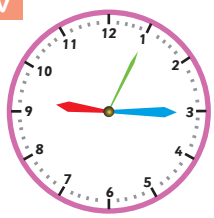
3 : 52 : 45

52 minutes 45 seconds past 3

iv 

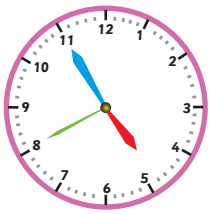
11 : 35 : 25

35 minutes 25 seconds past 11

v 

9 : 15 : 05

15minutes 5 seconds past 9

vi 

4 : 55 : 40

55 minutes 40 seconds past 4

2. Write time in 24-hour format.

i 

00 : 14 : 20

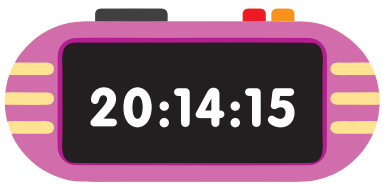
ii 

23 : 9 : 45

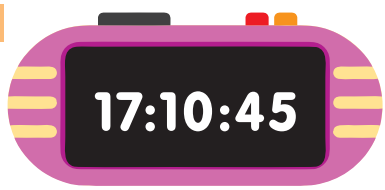
iii 

9 : 9 : 51

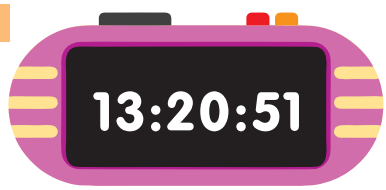
3. Write time in 12-hour format.

i 

8 : 14 : 15 pm

ii 

5 : 10 : 45 pm

iii 

1 : 20 : 51 pm

4. Circle whether we will use a.m. or p.m. to complete these sentences.

i Ayesha eats her breakfast at 7 a.m. .

(a.m.) p.m.

ii Ahmed goes to school at 8 a.m. .

(a.m.) p.m.

iii Amina comes home from school at 2 p.m. . a.m. p.m.

iv Ayyan goes to a park in the evening at 4 p.m. . a.m. p.m.

v Bilal sleeps at 9 p.m. every night. a.m. p.m.

Conversion of Hours, Minutes and Seconds

EXERCISE 6.2

1. Convert the following into minutes.

i 3 hours
= 3 × 60 mins
= 180mins

ii 7 hours
= 7 × 60 mins
= 420 mins

iii 1 hour 15 minutes
= 1 × 60 mins + 15 mins
= 60 mins + 15
= 75 mins

iv 2 hours 5 minutes
= 2 × 60 mins + 5 mins
= 120 + 5
= 125 mins

v 3 hours 20 minutes
= 3 × 60 mins + 20 mins
= 180 mins + 20 mins
= 200mins

vi 7 hours 40 minutes
= 7 × 60 mins + 40 mins
= 420 mins + 40 mins
= 460 mins

2. Convert the following into seconds.

i 8 minutes
= 8 × 60 sec
= 480 sec

ii 24 minutes
= 24 × 60 sec
= 1440 sec

iii 5 minutes 20 seconds
= 5 × 60 + 20 sec
= 300 + 20 sec
= 320 sec

iv 6 minutes 16 seconds
= 6 × 60 sec + 16 sec
= 360 sec + 16 sec
= 376 sec

v 9 minutes 32 seconds
= 9 × 60 sec + 32 sec
= 540 sec + 32 sec
= 572 sec

vi 10 minutes 20 seconds
= 10 × 60 + 20 sec
= 600 + 20 sec
= 620 sec

Conversion of Years, Months and Weeks

EXERCISE 6.3

1. Convert the following into months.

i 8 years
= 8 × 12 months
= 96 months

ii 5 years
= 5 × 12 months
= 60 months

iii 15 years
= 15 × 12 months
= 180 months

iv 25 years
= 25 × 12 months
= 300 months

v 4 years 8 months
= 4 × 12 months + 8 months
= 48 + 8 months
= 56 months

vi 6 years 3 months
= 6 × 12 months + 3 months
= 72 + 3
= 75 months

2. Convert the following into days.

i 13 weeks
= 13 × 7 days
= 91 days

ii 18 weeks
= 18 × 7 days
= 126 days

iii 7 weeks
= 7 × 7 days
= 49 days

iv 35 weeks
= 35 × 7 days
= 245 days

v 10 weeks 3 days
= 10 × 7 days + 3 days
= 70 + 3
= 73 days

vi 4 weeks 5 days
= 4 × 7 days + 5 days
= 28 + 5
= 33 days

vii 25 weeks 18 days
= 25 × 7 days + 18 days
= 175 days + 18 days
= 193 days

viii 62 weeks 10 days
= 62 × 7 days + 10 days
= 434 + 10
= 444 days

ix 48 weeks 15 days
= 48 × 7 days + 15days
= 336 + 15
= 351 days

Addition and Subtraction of Measures of Time

EXERCISE 6.4

1. Add the following.

i
5 h 16 min 32 sec
+ 2 h 53 min 48 sec
7 h 69 min 80 sec

ii
1 h 36 min 51 sec
+ 2 h 13 min 23 sec
3 h 49 min 74 sec

iii
45 min 23 sec
+ 17 min 11 sec
62 min 34 sec

vi
15 years 8 months
+ 16 years 3 months
31 years 11 months

v
50 years 12 months 18 days
+ 41 years 8 months 13 days
91years 20 months 31 days

2. *Subtract the following.*

i 30h 12 min – 23h 10 min

30 h	12 min
– 23 h	10 min
7 h	2 min

ii 63h 38 min 52 sec – 59h 20 min 41 sec

63h	38 min	52 sec
– 59h	20 min	41 sec
4 h	18 min	11 sec

iii 25h 15 min – 18h 13 min

25h	15 min
– 18h	13 min
7 h	2 min

iv 7h 40 min 72 sec – 3h 3 min 64 sec

7h	40 min	72 sec
– 3h	3 min	64 sec
4 h	37 min	8 sec

v 27 years 13 months – 17years 2 months

27 years	13 months
– 17years	2 months
10 years	11 months

vi 3 years 18 months 5 days – 2 years 11 months 1 day

3 years 18 months	5 days
– 2 years 11 months	1 day
1 year 7 months	4 days

vii 56 years 22 months – 32years 19 months

56 years	22 months
– 32years	19 months
24 years	3 months

viii 29 years 37 months – 15 years 21 months

29 years	37 months
– 15 years	21 months
14 years	16 months

3. Hassan spent 2h 35min on his English homework 1h 48 min on his Urdu homework. How much time did he spend in total?

Time spent on english	=	2h	35min
Time spent on urdu	=	+ 1h	48min
Total time spent	=	3h	83min

4. Fahad takes 3 weeks 4 days to complete a maths project and 5 weeks 6 days to complete a science project. Find the total time in days.

Maths proejct	=	3 weeks 4 days
Science project	=	+ 5 weeks 6 days
Total time	=	8 weeks 10 days

Total time spent in days = 8 × 7 days + 10 days
= 56 + 10
= 66 days

5. Anum spent 6 hours and 45 minutes in office on Monday and 4 hours 30 minutes on Friday. How much more time did she spend in office on Monday than on Friday?

Time spent on Monday	=	6h	45mins
Time spent on Tuesday	=	− 4h	30mins
Difference	=	2h	15mins

She spend 2 hours 15 minutes more in office on Monday than on Friday.

6. Mr. Faheem is 31 years 6 months old and his son is 6 years 4 months old. Find the difference in their ages.

Mr. Faheem's age	=	31 years	6 months
His son's age	=	− 6 years	4 months
Difference	=	25 years	2 months

Unit 7

Geometry

EXERCISE 7.1

1. *Identify and tick (✓) the horizontal lines and cross (×) the vertical lines.*

i ✗ ii ✓ iii ✗ iv ✓

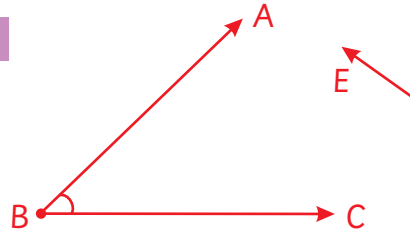
2. *Identify and tick (✓) the parallel lines and cross (×) the non-parallel lines.*

i ✓ ii ✗ iii ✓ iv ✗

EXERCISE 7.2

1. *Use protractor to measure the following angles. Also write if each angle is right, acute or obtuse angle. One has been done for you.*

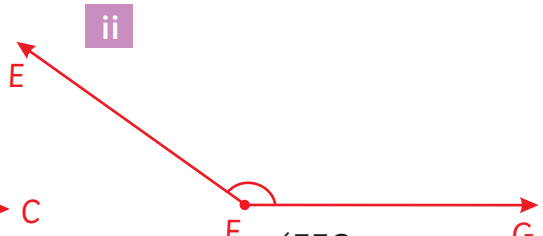
i



∠ABC

45°	Acute Angle

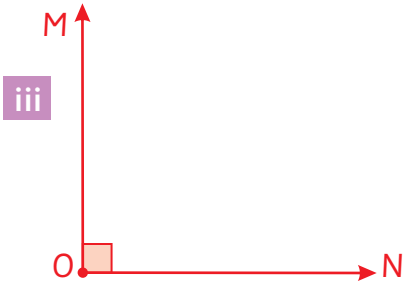
ii



∠EFG

145°	Obtuse angle

iii



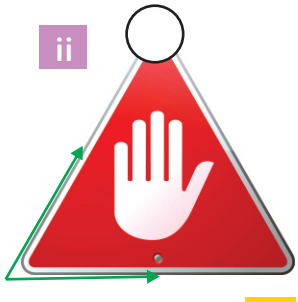
∠MON

90°	Right angle

2. *Identify and mark right angles in the following shapes.*

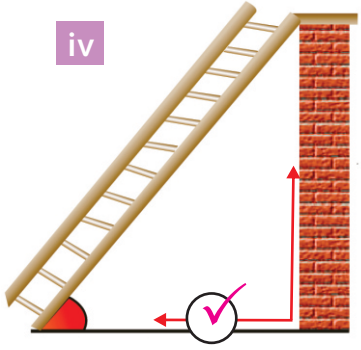
i

ii



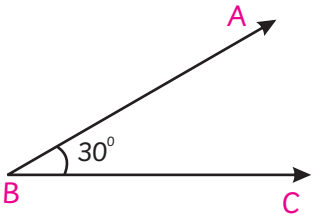
iii

iv

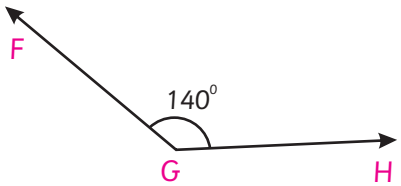


3. Construct the given angles using a protractor.

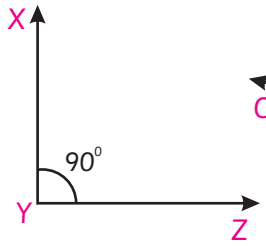
i ∠ABC 30°



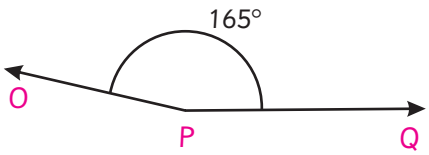
ii ∠FGH 140°



iii ∠XYZ 90°



iv ∠OPQ 165°

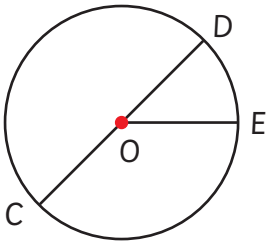


Circle and Its Parts

EXERCISE 7.3

1. Write the names of the diameter, radius and centre for the following circles.

i

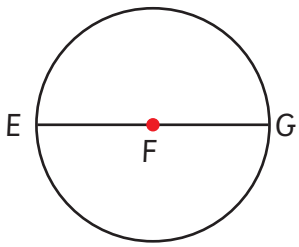


Diameter: CD

Centre: O

Radii: OE or OD or OC

ii



Diameter: EG

Centre: F

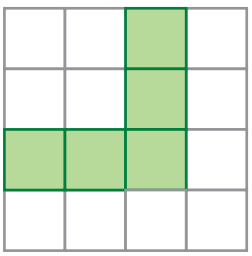
Radii: FG or FE

Area

EXERCISE 7.4

1. Find the perimeter and area of the following shapes if one small square = 1cm for perimeter and 2 cm^2 for area.

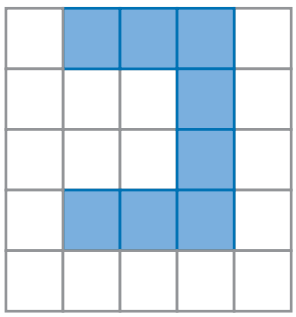
i



Perimeter = 12cm

Area = 5cm^2

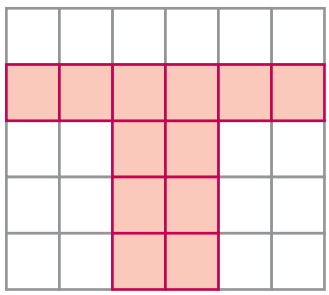
ii



Perimeter = 18cm

Area = 8cm^2

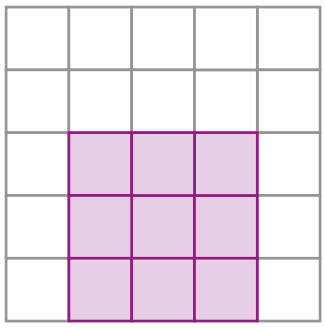
iii



Perimeter = 20cm

Area = 12cm^2

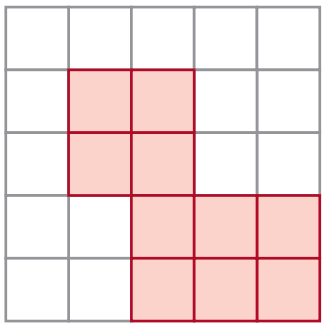
iv



Perimeter = 12cm

Area = 9cm²

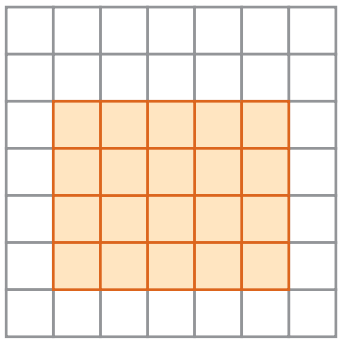
v



Perimeter = 16cm

Area = 10cm²

vi



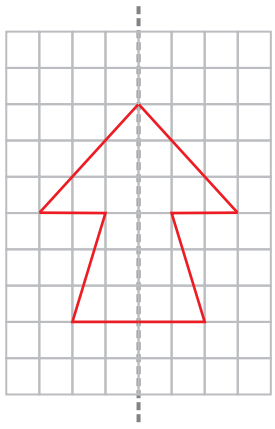
Perimeter = 18cm

Area = 20cm²

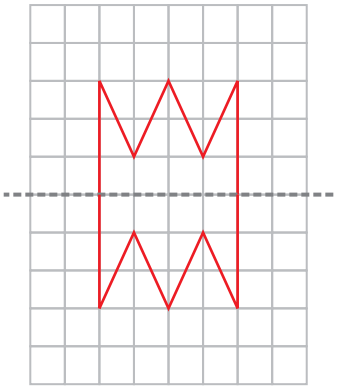
EXERCISE 7.5

1. Complete the symmetric figures on the square grids given below.

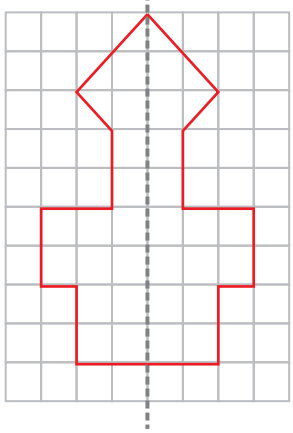
i



ii

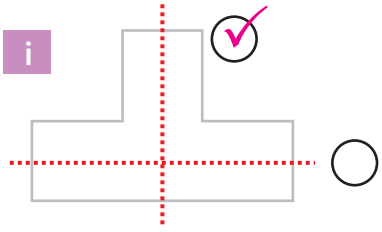


iii

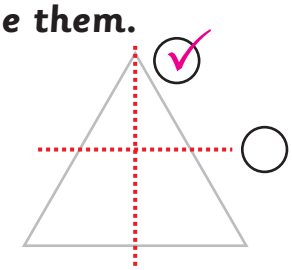


2. Look at the shapes and identify and tick (✓) the correct lines of symmetry (if any) and trace them.

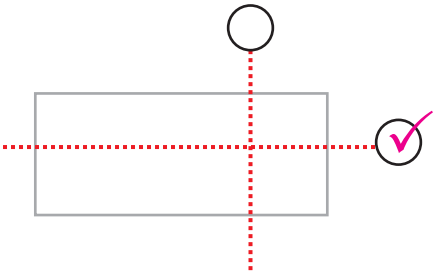
i



ii



iii

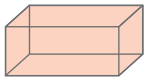


EXERCISE 7.6

Three Dimensional (3-D) Objects

1. Complete the table.

3-D Shapes	Name	No. of faces (flat or curved)	No. of Edges (straight or circular)	No. of Vertices
	Cube	6	12	8

	Cuboid	6	12	8
	Sphere	1	0	0
	Cylinder	3	2	0
	Cone	2	1	1
	Pyramid	5	8	5

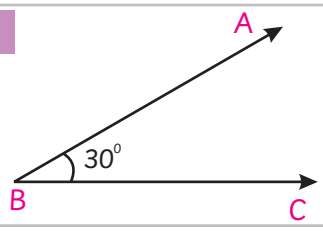
2. *Define the following illustrate them by drawing figures.*

Acute angle

If an angle is smaller than a right angle, it is called an acute angle.

Example ∠ 30°

i

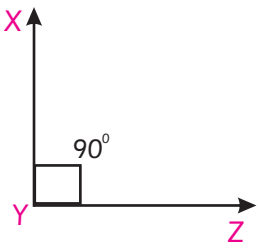


Right angle

An Angle that is exactly 90° is called right angle.

Example ∠90°

ii

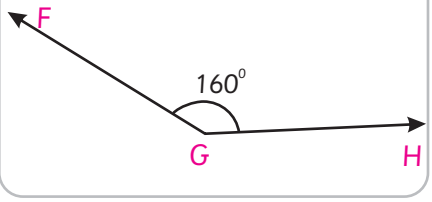


Obtuse angle

An Angle that is greater than 90° is known as obtuse angle.

Example ∠160°

iii

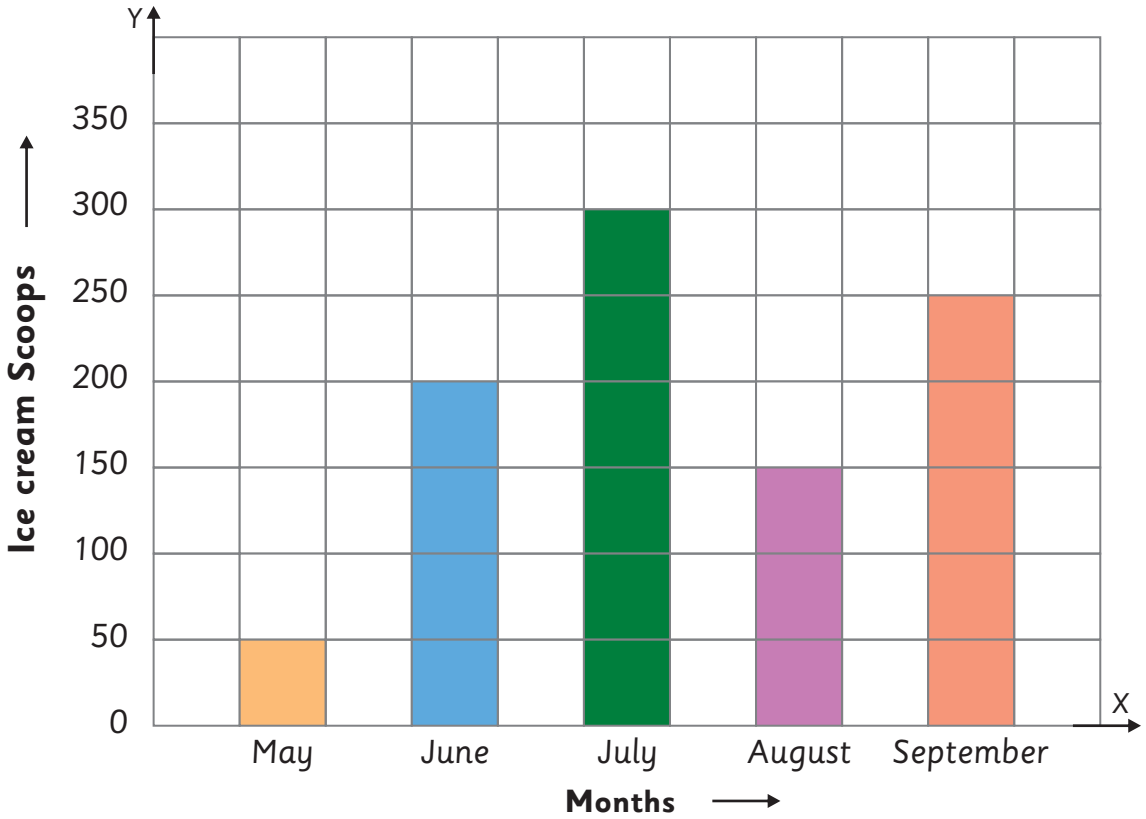


Unit
8

Data Handling
Bar Graphs

EXERCISE 8.1

1. *The following given vertical bar graph shows ice cream sold in months. Observe the graph and write answers.*



Observe the graph and answer the following statements.

i. In which month more ice cream scoops sold? — July

ii. Count scoops in May and June and write? — 250 Scoops

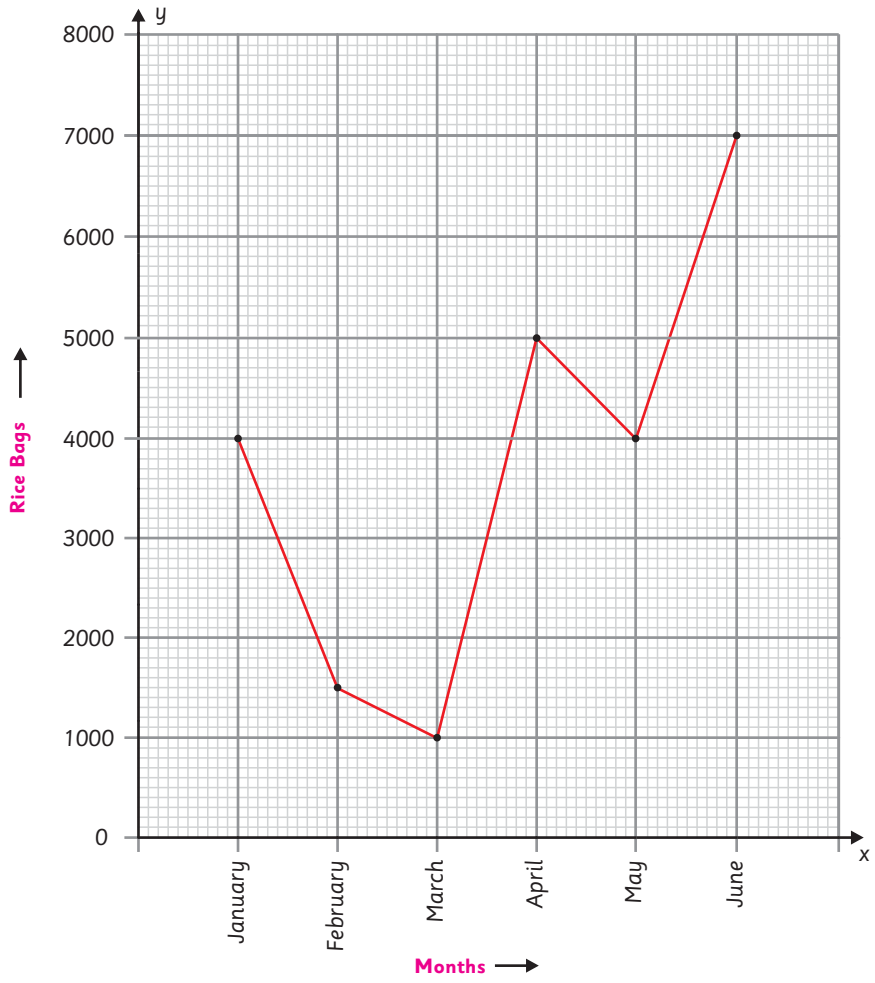
iii. In which month less ice cream scoops sold? — May

iv. Write the difference of ice cream scoops in the month of July and September? — 50 Scoops

v. Count total scoops which are sold? — 950 Scoops

2. *The line graph shows the number of rice bags present during the first six months of the year in a store. Interpret the line graph.*

Months	January	February	March	April	May	June
Number of Rice bags	4000	1500	1000	5000	4000	7000



Observe the graph and answer the following questions.

i. How many rice bags were in the store during the month of January? — 4000

ii. How many rice bags were in the store during the month of June? — 7000

iii. During which month, rice bags in the store were minimum? — March

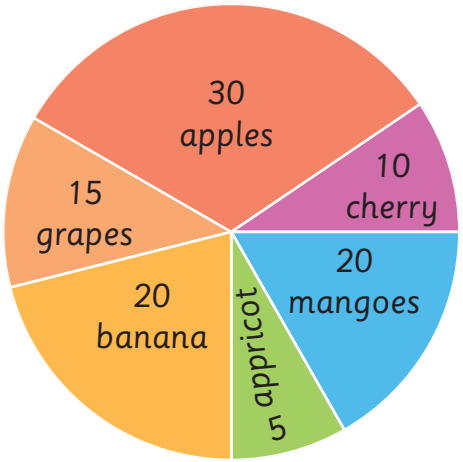
iv. How much more bags were there in the store during the months of April as compared to February? — 3500

v. How many total number of bags were in the store during the six months? — 22,500

Pie Chart

EXERCISE 8.2

1. Interpret the given pie chart, in which the number of fruits on a trolly is shown.



i. How many types of fruits are on the trolly?

6 Types

ii. What number of mangoes?

20

iii. What number of cherries?

10

iv. What number of apples?

30

v. What number of bananas?

20

vi. What number of apricot?

5

vii. What number of grapes?

15

viii. The fruit which is maximum in number is.

apples

ix. The fruit which is minimum in number is:

appricots

x. Which fruit is equal in number as compared to banana and cherry?

apples

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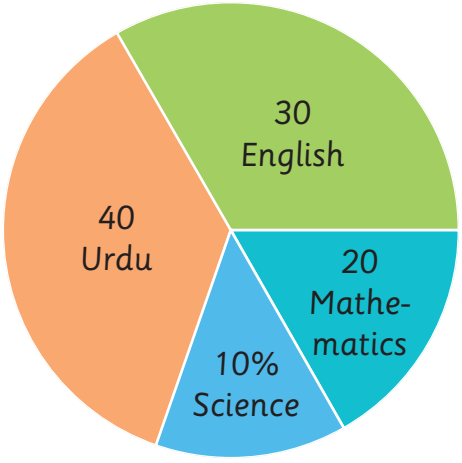
2. In the given pie chart, data of books of different subjects in a school library are shown. Read the pie chart and interpret it.

Note

There are four types of books in a school as shown in the pie chart. These books are on the subject of Urdu, English, Mathematics and Science.



i What number of books on Urdu are present in the school library? 40

ii What number of books on Mathematics are present in the school library? 20

iii What number of books on the English are present in the school library? 30

iv What number books on Science are present in the school library? 10