NEW MATHAMATICS

(TEACHER GUIDE)

Class Six

Chapter 1

Directed Numbers of Integers

EXERCISE 1.1

Q.1: Give the opposite of each of the following.

1) **15** Kilometers below sea level.

Ans: 15 kilometers above sea level.

2) A gain of Rs. 25.

Ans: A loss of Rs. 25.

3) A bank deposit of Rs. 1000.

Ans: A withdraw of Rs. 1000.

4) A loss of Rs. 100.

Ans: A gain of Rs. 100.

5) An increase of Rs. 200 in salary.

Ans: A decrease of Rs 2000 in salary.

6) Going 30Km. North

Ans: Going 30Km. South

7) 10°C above zero.

Ans: 10 C below zero.

8) Lossing weight of 7kg.

Ans: Gaining weight of 7kg.

9) Spending money.

Ans: Saving money.

10) Below average.

Ans: Above average.

Q.2: Use integers to indicate the following.

1) A withdraw of Rs. 5000.

Ans: – 5000.

2) A gain of Rs. 500.

Ans: + 500.

3) 5 degree below from freezing point.

Ans: – 5.

4) Two floors up.

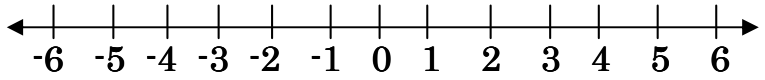
Ans: + 2

5) A ladder of 5 meters.

Ans: + 5.

Q.3: Draw a number line and represent the following directed numbers on it.

1) -3, 5, -1, 4, -4, 0, -2, 3, 1, 2, -5, 6, -6



Q.4: Write >, = or < blw each of the following.

1) – 3, – 4
Ans: – 3 > – 4

2) –7 , 10
Ans: –7 >10

3) –10, –7
Ans: –10 < –7

4) –15, 0
Ans: –15, <0

5) –22, 1
Ans: –2 L < 1

6) –1, 0
Ans: –10 < 0

7) 0, 1
Ans: 0< 1

8) 3, – 5
Ans: 3> – 5

9) 9 > – 9
Ans: 9 > – 9

10) 0, – 5
Ans: 0 > – 5

Q.5: Write the following in ascending and descending order.

1) +8, -15, -10, + 15, 2, 0, + 5, -5, -3, 3.

∴ Ascending order.

-15, -10, -5, -3, 0, 2, 3, 5, 8, 15

∴ Desending order.

15, 8, 5, 3, 2, 0, -3, -5, -10, -15.

EXERCISE 1.2

Q.1 Perform the indicated operation.

i)
+ 5
+ 8
+ 13

ii)
– 9
+ 12
+ 3

iii)
+ 7
– 19
– 12

iv)
– 8
+ 16
– 8

v)
– 11
– 21
– 32

vi)
– 24
+ 11
– 13

vii)
– 41
+ 35
– 6

viii)
– 62
+ 15
– 47

ix)
– 15
+ 15
0

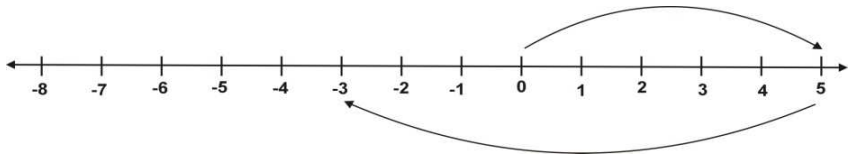
x)
– 9
+ 9
0

Q.2: Fill in the blanks with the appropriate integers to make each statement true.

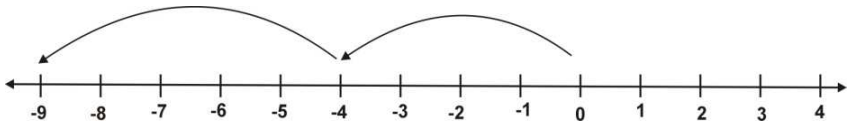
i) – 7 + 17 = 10
ii) – 5 + – 2 = – 7
iii) – 3 + (– 11) = – 14
iv) + 9 – 15 = – 6
v) – 13 + 13 = 0

Q.3: Using an arrow for each diagram, illustrate the following additions on numbers lines and write down the results.

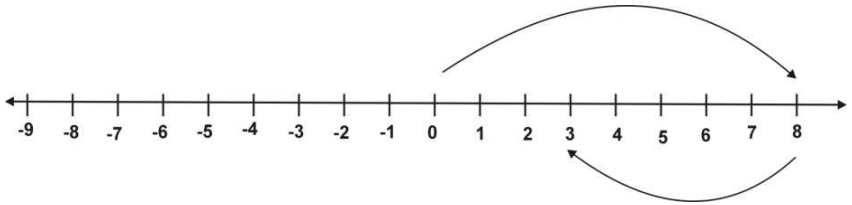
1) – 8, 5



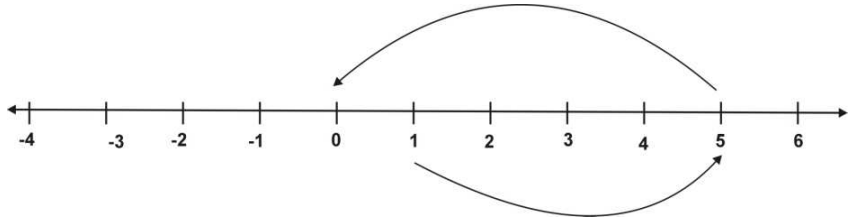
2) – 4, – 5



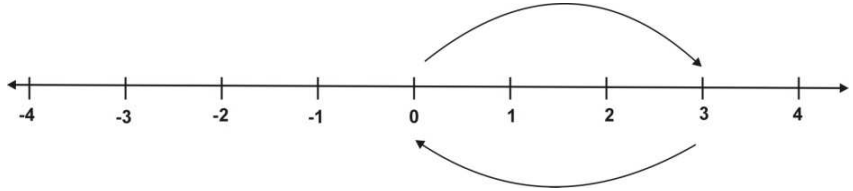
3) 8, – 5



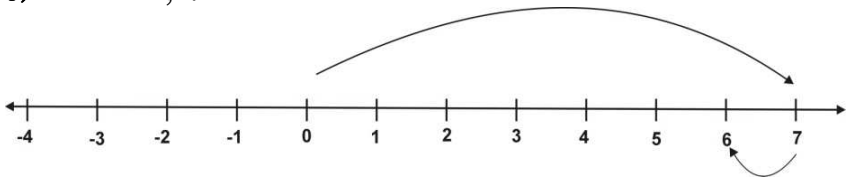
4) 5, – 6



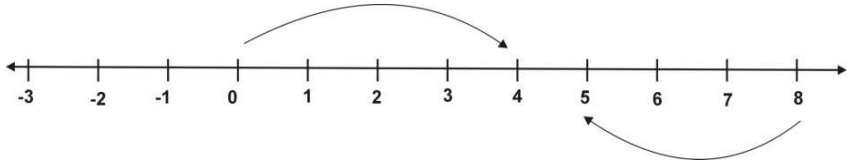
5) – 3, 3



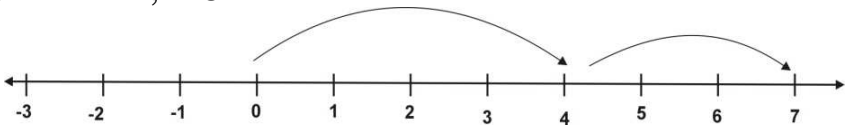
6) –1, 7



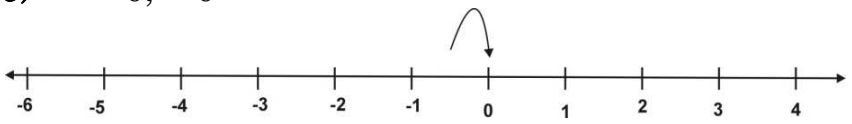
7) 8, – 3



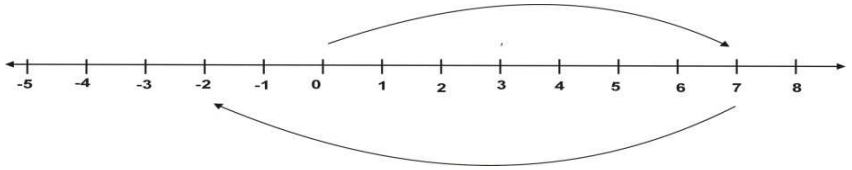
8) + 4, + 3



9) 0, + 0



10) 7, – 9



Q.4: Do the following additions:

1) –1 + (–2) +3

Sol:

–1 + (–2) +3
–1 – 2 + 3
– 3 + 3
0 Ans

2) – 3 +4 (– 3)

Sol:

– 3 + 4 – 3
– 6 +4
– 2 Ans

3) 17+ (– 27) + 62

Sol:

= 17 + (–27) + 62
= 17 – 27 + 62
= 79 – 29
= 52 Ans

4) – 261 + (–148)+ 109

Sol:

– 261 + (–148) + 109
– 261 – 148 + 109
– 409 + 109
– 300 Ans

5) –726 + (– 402) + 360

Sol:

– 726 + (–402) + 360
– 1128 + 360
– 768 Ans

Q.5: Give a single integer value of each of the following.

1) +5 + 4 + 9

Sol:

+5 + 4 + 9
+ 9 + 9
= 18 Ans

2) – 21 + 12 + (–5)

Sol:

– 21 + 12 + (–5)
– 21 + 12 – 5
– 21 – 5 + 12
– 26 + 12
– 14 Ans

3) – 23 + (– 27) + (– 5)

Sol:

– 23 + (– 27)+ (– 5)
– 23 – 27 – 5
– 50 – 5
– 55 Ans

4) 3+ (– 8)+ (– 8) + 3

Sol:

3+ (– 8) + (– 8) + 3
3 – 8 – 8 + 3
3 + 3 – 8 – 8
6 – 16
– 10 Ans

5) 100 + (– 50) + (–40) + (– 10)

Sol:

= 100 + (– 50) + (– 40) + (– 10)
= 100 – 50 – 40 – 10
= 100 – 90 – 10
= 100 – 100
0 Ans

EXERCISE 1.3

Q.1 Subtract.

i) 12 − 5 = 7

ii) 19 − 22 = − 3

iii) 36 − 16 = 19

iv) $\begin{array}{r} -18 \\ 7 \\ \hline 11 \end{array}$ v) $\begin{array}{r} -25 \\ -20 \\ \hline -5 \end{array}$ vi) $\begin{array}{r} -5 \\ -7 \\ \hline -12 \end{array}$

vii) $\begin{array}{r} 3 \\ +7 \\ \hline 11 \end{array}$ viii) $\begin{array}{r} -63 \\ 36 \\ \hline 25 \end{array}$ ix) $\begin{array}{r} -23 \\ -13 \\ \hline -36 \end{array}$

x) $\begin{array}{r} -165 \\ 99 \\ \hline 66 \end{array}$

Q.2: The sum of two integers is 102 and one 57.

Of them is final the order.

Solution:

= 102 – 57
= 45 Ans.

Q.3: Find the value of:

1) 16– 62 – (–21)

Sol:

16 – 62 – (– 21)
16 – 62 + 21
– 46 + 21
– 25 Ans

2) – 32 – (–13) – 12 – 6

Sol:

– 32 – (– 13) – 12 – 6
– 32 + 13 – 12 – 6
– 19 – 18
– 37 Ans

3) 45–(–4)–7–(–5)

Sol:

= 45–(–4)–7–(– 5)
= 45 + 4 – 7 + 5
= 49 – 2
= 47 Ans

4) 70 – 28 – (–15) – 52

Sol:

= 70 – 28 – (–15) – 52
= 70 – 28 + 15 – 52
= 85 – 80
= 5 Ans

EXERCISE 1.4

Q.1: Find the product of each of the following.

1) (12) x 17 R.W

Sol: =(– 12) x 17

= – 204 Ans

$\begin{array}{r} 17 \\ \times 12 \\ \hline 134 \\ +17x \\ \hline 204 \end{array}$

2) 9 x (– 23) R.W

Sol: = 9 x (– 23)
= – 207 Ans

$\begin{array}{r} 23 \\ \times 9 \\ \hline 207 \end{array}$

3) (– 18) x (–15) R.W

Sol: (– 18) x (–15)

= 270 Ans

$\begin{array}{r} 18 \\ \times 15 \\ \hline 190 \\ +18x \\ \hline 270 \end{array}$

4) (– 30) x 5 x (–10)

Sol:

= (– 30) x 5 x (–10)
= (– 30) x 5 x (– 10)
= (– 150) x (– 10)
= 1500 Ans

5) 4 x (– 24) x 5

Sol:

4 x (– 24) x 5
– 96 x 5
– 480 Ans

6) (– 8) x (– 25) x 0

Sol: = (– 8) x (– 25) x 0
= 200 x 0
= 0 Ans

7) (– 21) x 5 (–2)

Sol: = (– 21) x 5 (–2)
= (– 105) x (–10)
= 210 Ans

8) 22 x (– 45) x 16

Sol: = 22 x (– 45) x 16
= 22 x (– 45) x 16
= – 990 x 16
= – 15840 Ans

9) (– 2) x 3 x (– 4) x 5 x (–6)

Sol: (– 2) x 3 x (– 4) x 5 x (–6)
= (– 6) x (– 20) x (– 6)
= (120) x (– 6)
= – 720 Ans

10) (–10) x (– 20) x (– 30) x (– 40) x (– 50)

Sol: (–10) x (– 20) x (– 30) x (– 40) x (– 50)
= (200) x (1200) x (50)
= (240000) x (50)
= 12000000 Ans.

Q.2: Fill in the blanks.

i) + 21 x (– 2) = – 42

ii) (– 55) x – 1 = 55

iii) 0 x (– 65) = 0

iv) (– 19) x + 5 = – 95

v) (– 11) x – 2 = 22

Q.3: Complete the following multiplication table.

x	-5	-4	-3	-2	-1	0	1	2	3	4
-5	-4	-3	-2	-1	0	1	2	3	4	6
-4	-3	-2	-1	0	1	2	3	4	5	6
-3	-2	-1	0	1	2	3	4	5	6	7
-2	-1	0	1	2	3	4	5	6	7	8
-1	0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
2	3	4	5	6	7	8	9	10	11	12
3	4	5	6	7	8	9	10	11	12	13
4	5	6	7	8	9	10	11	12	13	14

Q.4: Two integers m and n are such that m>1, and mxn = n xm = n.Find the the integers n.

Ans: 1 > n

Q.5: Choose the statements that are correct from the following and write them down.

i) In a negative product, there is an odd number of negative integers.

ii) For every integer P and q, their product pq is greater that each of the integer P and q.

iii) The product of (-12) x (-7) x (-20) x 0 is a integer.

iv) If the product of two integers is positive, then both the integers are either positive or both are negative.

v) There is an integer n, which as a factor, makes every product equal to one another and itself. Name the integer.

Ans: (i) , (iv) , (v) the integer is 0.

EXERCISE 1.5

Q.1: Find the quotient.

1) (– 15) , (– 3)

Sol: (– 15) ÷ (– 3)

$\frac{-15}{-3}$ = 5 Ans

2) (–26) , 2

Sol: (–26) ÷ (2)

$\frac{-26}{2}$ = – 13 Ans

3) 35, (– 5)

Sol: (35) ÷ (– 5)

$\frac{35}{-5}$ = – 7 Ans.

4) (– 72) , (–6)

Sol: (– 72) ÷ (–6)

$\frac{-72}{-6}$ = 12 Ans

5) (– 69) , (– 7)

Sol: (– 69) ÷ (– 7)

$\frac{-69}{-1}$ = 69 Ans

6) 93, (–1)

Sol: (93) ÷(–1)

$\frac{93}{-1}$ = – 93 Ans

7) (– 432) , (–12)

Sol: (– 432) ÷ (–12)

$$12\overline{)432}\ (\ 36$$
$$-36$$
$$72$$
$$-72$$
$$x4$$

= 36 Ans

8) 750 , (– 75)

Sol: 750 ÷ (– 75

$\frac{750}{-75}$ = – 10 Ans

9) 9009 , (– 1001)

Sol: 9009 ÷ (– 1001)

$\frac{9009}{-1001}$

= – 9 Ans

10) (– 1000) , (–200)

Sol: (– 1000) ÷ (–200)

$\frac{-1000}{-200}$

= 5 Ans

Q.2: Simplify:

1) (4 x –7) , (– 14)

Sol: (4 x –7) , (– 14)

– 28 , –14

(– 28)÷(–14)= $\frac{-28}{-14}$

= 2 Ans.

2) 60, (– 5 x – 3)

Sol: 60, (– 5 x – 3)

60, 15

60 ÷15

$\frac{60}{15}$ = 4 Ans

3) – 55, (– 5) + (– 6)

Sol: – 55, (– 5) + (– 6)

– 55 , – 5 + (– 6)

– 55 , – 5 – 6

– 55 , – 11

(– 55) ÷ (– 11) = $\frac{-55}{-11}$

= 55 Ans.

4) (– 12 x 10) , (– 4 x 15)

Sol: (– 12 x 10) , (– 4 x 15)
(– 120) , (– 60)
(– 120) ÷ (– 60)

$\frac{-120}{-60}$ = 2 Ans

5) (10) + (–10), (6 x 30)

Sol: { (10 + (– 10) } , (– 150)
(10 – 10), (– 150) = 0, – 150

$\frac{0}{-150}$ = 0 Ans

EXERCISE: 1.5

Q.3: Fill in the blanks.

i) (- 84) + 72 = – 12
ii) 100 – 101 = – 1
iii) + 18 + (– 3) = 15
iv) – 28 + 25 = – 3
v) 0 (– 200) = 0

Q.4: **Find the quotient.**

1) – 468, 36

Sol: (– 468) ÷ (36)

$= \frac{-460}{36}$

= 13 Ans

```
      13
36 ) 468 (
     – 36
     ----
      108
     –108
     ----
       xx
```


2) – 528 , – 24

Sol: (– 528) ÷ (–24)

$\frac{-528}{-24}$

= 22 Ans

```
      22
24 ) 528 (
     – 48
     ----
      48
     – 48
     ----
       x x
```

Q.5: **Find the quotient.**

1) $\frac{1024}{-32}$

Sol:

– 32 Ans

```
      32
32 )1024 (
     – 96
     ----
      64
     – 64
     ----
       x4
```

2) $\frac{6400}{160}$

Sol: $= \frac{640\not{0}}{16\not{0}}$

$= \frac{640}{16}$

= 400 Ans.

```
      400
16 ) 640 (
     640
     ---
     xxx
```

Exercise 1.6

Q.1: **Give the base and the index of each of the following.**

1) 2^5

Sol: Base = 2
Index = 5

2) $(-3)^2$

Sol: Base = – 3
Index = 2

3) 11^1

Sol: Base = 11
Index = 1

4) $(-5)^1$

Sol: Base = – 5
Index = 1

5) $(-7)^4$

Sol: Base = – 7
Index = 4

6) $(-11)^3$

Sol: Base = – 11
Index = 3

7) 10^6

Sol: Base = 10
Index = 6

8) $(-9)^3$

Sol: Base = – 9
Index = 3

9) $(-13)^3$

Sol: Base = – 13
Index = 3

10) $(25)^9$

Sol: Base = 25
Index = 9

Q.2: Give the numerals equivalent to each of the following.

1) 2^3

Sol: $= 2^3$
$= 2 \times 2 \times 2$
$= 8$ Ans

2) $(-3)^2$

Sol: $= (-3)^2$
$= (-3)(-3)$
$= 9$ Ans

3) $(-5)^3$

Sol: $= (-5)^3$
$= (-5) \times (-5) \times (-5)$
-125 Ans

4) $(7)^2$

Sol: $(7)^2$
$= (7)(7)$
$= 49$ Ans

5) $(-1)^{100}$

$= (-1)^{100}$
$= 1$ Ans

6) $(-10)^4$

Sol: $(-10)^4$
$(-10)(-10)(-10)(-10)$
10000 Ans.

7) $(-3)^5$

Sol: $= (-3)^5$
$= (-3)(-3)(-3)(-3)(-3)$
$= -243$ Ans

8) $(-2)^7$

Sol: $(-2)^7$
$= (-2)(-2)(-2)(-2)(-2)(-2)(-2)$
$= -128$ Ans

9) $(-8)^3$

Sol: $(-8)^3$
$= (-8) \times (-8) \times (-8)$
$= -512$ Ans

Q.3: Use the index from to notation to write the following.

1) $(-7) \times (-7) \times (-7) \times (-7)$

Sol: $= (-7) \times (-7) \times (-7) \times (-7)$
$= (-7)^4$ Ans.

2) $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

Sol: $= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$
$= 2^9$ Ans.

3) $(-1) \times (-1) \times (-1) \times (-1) \times (-1)$

Sol: $(-1) \times (-1) \times (-1) \times (-1) \times (-1)$

$= -(-1)^5$

Q.4: Choose and write the true statement from the group given below.

1) The square of any integers, positive or negative is positive.

Ans: True:

2) The cube of a negative integers is negative.

Ans: True:

3) 2^4 and 4^2 represent the same number.

Ans: True:

4) 2^3 and 3^2 represent the same number.

Ans: False:

Q.5: Prove that.

1) $2^8 = 256$

- $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$
- $= 256$ Ans

2) $(-1)^7 = -1$

- $(-1) \times (-1) \times (-1) \times (-1) \times (-1) \times (-1) \times (-1)$
- $= -1$ Ans

3) $3^5 = 243$

- $3 \times 3 \times 3 \times 3 \times 3$
- $= 243$ Ans

Chapter 2

FRACTIONS

EXERCISE 2.1

Q.1: Write the proper, improper and compound or mireal fraction sepratily in the following.

1) $\frac{12}{5}$

Ans: Improper fraction

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

Ans: Proper fraction

3) $3\frac{1}{8}$

Ans: Compound fraction

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

Ans: Proper fraction

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

Ans: Proper fraction

6) $10\frac{2}{4}$

Ans: Compound fraction

7) $\frac{4}{13}$

Ans: Proper fraction

8) $\frac{8}{10}$

Ans: Proper fraction

9) $\frac{4}{7}$

Ans: Proper fraction

10) $\frac{12}{10}$

Ans: Improper fraction

11) $1\frac{2}{3}$

Ans: Compound fraction

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

Ans: Improper fraction

13) $6\frac{2}{5}$

Ans: Compound fraction

14) $\frac{2}{9}$

Ans: Proper fraction

15) $\frac{30}{25}$

Ans: Improper fraction

Q.2: Convert the following fraction into compound fractions.

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

Sol:

$\frac{3}{2}$

$= 1\frac{3}{2}$ Ans

$$2\overline{)\ 3\ (\ 1}$$
$$-2$$
$$1$$

2) $\frac{7}{5}$

Sol:

$\frac{7}{5}$

$= 1\frac{2}{5}$ Ans

$$5\overline{)\ 7\ (\ 1}$$
$$-5$$
$$2$$

3) $\frac{25}{7}$

Sol:

$\frac{25}{7}$

$3\frac{4}{7}$ Ans,

$$7\overline{)\ 25\ (\ 3}$$
$$-21$$
$$4$$

4) $\frac{11}{6}$

Sol:

$\frac{11}{6}$

$1\frac{5}{6}$ Ans

$$6\overline{)\ 11\ (\ 1}$$
$$-6$$
$$5$$

5) $\frac{20}{19}$

Sol:

$\frac{20}{19}$

$1\frac{1}{19}$ Ans

$$19\overline{)\ 20\ (\ 1}$$
$$-19$$
$$\text{x } 1$$

6) $\frac{25}{8}$

Sol:

$\frac{25}{8}$

$3\frac{1}{8}$ Ans

$$8\overline{)\ 25\ (\ 3}$$
$$-24$$
$$1$$

7) $\frac{50}{7}$

Sol:

$\frac{50}{7}$

$7\frac{1}{7}$ Ans

$$7\overline{)\ 50\ (\ 7}$$
$$-49$$
$$1$$

8) $\frac{89}{11}$

Sol:

$$\begin{array}{r} 8 \\ 11\overline{)\ 89\ (} \\ -\ 88 \\ \hline 1 \end{array}$$

$\frac{89}{11} = 8\frac{1}{11}$

9) $\frac{137}{12}$

Sol:

$$\begin{array}{r} 11 \\ 12\overline{)\ 137\ (} \\ -\ 12 \\ \hline 17 \\ -\ 12 \\ \hline 5 \end{array}$$

$\frac{137}{12}$

$11\frac{5}{12}$ Ans

10) $\frac{256}{17}$

Sol:

$$\begin{array}{r} 15 \\ 17\overline{)\ 256\ (} \\ -\ 17 \\ \hline 86 \\ -\ 85 \\ \hline 1 \end{array}$$

$\frac{256}{17}$

$15\frac{1}{17}$ Ans

Q.3: Complete the following.

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

ii) $\frac{7}{8} = \frac{7 \times 5}{8 \times 5} = \frac{35}{40}$

iii) $\frac{11}{9} = \frac{11 \times 7}{9 \times 7} = \frac{77}{63}$

iv) $\frac{6}{9} = \frac{6 \times 3}{9 \times 3} = \frac{18}{27}$

v) $\frac{16}{40} = \frac{16 \times 8}{40 \times 8} = \frac{128}{320}$

vi) $\frac{22}{66} = \frac{22 \times 11}{66 \times 11} = \frac{240}{726}$

Q.4: Write three equivalent fractions of each of the following reactions.

1) $\frac{4}{8}$

Sol: $\frac{4}{8}$

$\frac{4x1}{8x1} = \frac{4x2}{8x2} = \frac{4x3}{8x3} = \frac{4x4}{8x4}$

$\frac{4}{8} = \frac{8}{16} = \frac{12}{24} = \frac{16}{32}$ Ans

2) $\frac{9}{12}$

Sol: $\frac{9}{12}$

$\frac{9x1}{12x1} = \frac{9x2}{12x2} = \frac{9x3}{12x3} = \frac{9x4}{12x4}$

$= \frac{9}{12} = \frac{18}{24} = \frac{27}{36} = \frac{36}{48}$ Ans

3) $\frac{15}{20}$

Sol: $\frac{15}{20}$

$\frac{15x1}{20x1} = \frac{15x2}{20x2} = \frac{15x3}{20x3} = \frac{15x4}{20x4}$

$= \frac{15}{20} = \frac{30}{40} = \frac{45}{60} = \frac{60}{80}$ Ans

4) $\frac{20}{40}$

Sol: $\frac{20}{40}$

$\frac{20x1}{40x1} = \frac{20x2}{40x2} = \frac{20x3}{40x3} = \frac{20x4}{40x4}$

$= \frac{20}{40} = \frac{40}{80} = \frac{60}{120} = \frac{80}{160}$ Ans

5) $\frac{42}{63}$

Sol: $\frac{42}{63}$

$\frac{42x1}{63x1} = \frac{42x2}{63x2} = \frac{42x3}{63x3} = \frac{42x4}{63x4}$

$= \frac{42}{63} = \frac{84}{126} = \frac{126}{189} = \frac{168}{252}$ Ans

Q.5: Write three equivalent fractions of each of the following fractions by division.

1) $\frac{27}{81}$

Sol: $\frac{27}{81}$

$\frac{27\div 3}{81\div 3} = \frac{9\div 3}{27\div 3} = \frac{3\div 3}{9\div 3}$

$= \frac{9}{27} = \frac{3}{9} = \frac{1}{3}$ Ans

2) $\frac{64}{128}$

Sol: $\frac{64}{128}$

$\frac{64\div 4}{128\div 4} = \frac{16\div 4}{32\div 4} = \frac{4\div 4}{8\div 4}$

$= \frac{16}{32} = \frac{4}{8} = \frac{1}{2}$ Ans

3) $\frac{125}{625}$

Sol: $\frac{125}{625}$

$= \frac{125\div 5}{625\div 5} = \frac{25\div 5}{125\div 5} = \frac{5\div 5}{25\div 5}$

$= \frac{25}{125} = \frac{5}{125} = \frac{1}{5}$ Ans

4) $\frac{243}{81}$

Sol: $\frac{243}{81}$

$\frac{243\div 3}{81\div 3} = \frac{81\div 3}{27\div 3} = \frac{27\div 3}{9\div 3}$

$= \frac{81}{27} = \frac{27}{9} = \frac{9}{3}$ Ans

5) $\frac{128}{512}$

Sol: $\frac{128}{512}$

$= \frac{128\div 4}{512\div 4} = \frac{32\div 4}{128\div 4} = \frac{8\div 4}{32\div 4}$

$= \frac{32}{128} = \frac{8}{32} = \frac{2}{8}$ Ans

Q.6: Write the following in ascending and descending order.

1) $\frac{1}{3}, \frac{1}{5}, \frac{1}{9}, \frac{1}{12}, \frac{1}{7}$

Solution:

Ascending order:

$\therefore \frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{9}, \frac{1}{12}$

Descending order:

$\therefore \frac{1}{12}, \frac{1}{9}, \frac{1}{7}, \frac{1}{5}, \frac{1}{3}$

2) $\frac{1}{15}, \frac{1}{17}, \frac{1}{49}, \frac{1}{23}, \frac{1}{30}$

Solution:

Ascending order:

$\therefore \quad \frac{1}{15}, \frac{1}{17}, \frac{1}{23}, \frac{1}{30}, \frac{1}{49}$

$\therefore \quad \frac{1}{49}, \frac{1}{30}, \frac{1}{23}, \frac{1}{17}, \frac{1}{15}$

Q.7: Write each of the following fractions in there simplest form.

1) $\frac{10}{15}$

Sol: $\frac{10}{15}$

$= \frac{10}{15}$

$= \frac{\cancel{10}^{2}}{\cancel{15}_{3}}$

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

2) $\frac{25}{15}$

Sol: $= \frac{25}{15}$

$= \frac{25}{15}$

$= \frac{5}{3}$ Ans

3) $\frac{36}{48}$

Sol: $\frac{36}{48}$

$= \frac{\cancel{36}^{6}}{\cancel{48}} = \frac{\cancel{6}^{3}}{\cancel{8}} = \frac{3}{4}$ Ans

4) $\frac{64}{40}$

Sol: $\frac{64}{40}$

$= \frac{64}{40} = \frac{64}{40}^{8} = \frac{8}{5}$ Ans

5) $\frac{128}{190}$

Sol: $= \frac{128}{190}$

$= \frac{\cancel{128}}{\cancel{190}} = \frac{64}{95}$ Ans

Q.8: Which one is less than or greater than the other in each pair of the following fractions.

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

$\frac{1}{4} < \frac{3}{4}$ Ans

2) $\frac{2}{5}, \frac{2}{7}$

$\frac{2}{5} > \frac{2}{7}$ Ans

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

$\frac{2}{3} > \frac{1}{2}$ Ans

4) $\frac{3}{5}, \frac{5}{8}$

$\frac{3}{5} < \frac{5}{8}$ Ans

5) $\frac{5}{7}, \frac{3}{3}$

$\frac{5}{7} < \frac{3}{3}$ Ans

6) $\frac{9}{12}, \frac{9}{10}$

$\frac{9}{10} < \frac{9}{10}$ Ans

7) $\frac{6}{7}, \frac{7}{6}$

$\frac{6}{7} < \frac{7}{6}$ Ans

8) $\frac{9}{10}, \frac{10}{11}$

$\frac{9}{10} < \frac{10}{11}$ Ans

Q.9: Convert the following common fraction into decimal fractions upto three decimals.

1) $\frac{5}{6}$

R.W

Sol: $\frac{5}{6}$

$$
\begin{array}{r}
0.833 \\
6\overline{)\ 50\ (} \\
-\ 48 \\
\hline
20 \\
-\ 18 \\
\hline
20 \\
-\ 18 \\
\hline
2
\end{array}
$$

= 0.833 Ans

3) $\frac{3}{10}$

Sol: $\frac{3}{10}$

$$
\begin{array}{r}
0.3 \\
)\ 30\ (\\
-\ 30 \\
\hline
x\ x
\end{array}
$$

= 0.3 Ans

2) $\frac{4}{7}$

Sol: $\frac{4}{7}$

$$
\begin{array}{r}
0.571 \\
7)\ 40\ (\\
-\ 35 \\
\hline
50 \\
-\ 49 \\
\hline
10 \\
-\ 7 \\
\hline
3
\end{array}
$$

0.571 Ans

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

Sol: $\frac{2}{9}$

$$
\begin{array}{r}
0.222 \\
9)\ 20\ (\\
-\ 18 \\
\hline
20 \\
-\ 18 \\
\hline
20 \\
-\ 18 \\
\hline
2
\end{array}
$$

0.222Ans

5) $\frac{25}{3}$

Sol: $\frac{25}{3}$

$$
\begin{array}{r}
8.333 \\
3\ )\ 25\ (\\
-\ 24 \\
\hline
10 \\
-\ 9 \\
\hline
10 \\
-\ 9 \\
\hline
10 \\
-\ 9 \\
\hline
1
\end{array}
$$

8.333 Ans

6) $\frac{14}{13}$

Sol: $\frac{14}{13}$

$$
\begin{array}{r}
10.768 \\
13)140\ (\\
-\ 130 \\
\hline
100 \\
-\ 91 \\
\hline
90 \\
-\ 78 \\
\hline
120 \\
-\ 104 \\
\hline
16
\end{array}
$$

10.768 Ans

7) $\frac{15}{17}$

Sol: $\frac{15}{17}$

$$
\begin{array}{r}
8.823 \\
17\overline{)\ 150\ (} \\
-\ 136 \\
\hline
140 \\
-\ 136 \\
\hline
40 \\
-\ 34 \\
\hline
60 \\
51 \\
\hline
9
\end{array}
$$

8.823 Ans

9) $\frac{1}{14}$

Sol: $\frac{1}{14}$

$$
\begin{array}{r}
0.0714 \\
14\overline{)\ 100\ (} \\
98 \\
\hline
200 \\
-\ 14 \\
\hline
60 \\
-\ 56 \\
\hline
4
\end{array}
$$

= 0.0714 Ans

8) $\frac{10}{12}$

Sol: $\frac{10}{12}$

$$
\begin{array}{r}
8.333 \\
12\overline{)\ 100\ (} \\
-\ 96 \\
\hline
40 \\
-\ 36 \\
\hline
40 \\
-\ 36 \\
\hline
40 \\
-\ 36 \\
\hline
4
\end{array}
$$

8.333 Ans

10) $\frac{16}{15}$

Sol: $\frac{16}{15}$

$$
\begin{array}{r}
1.0666 \\
15\overline{)\ 16\ \ (} \\
-\ 15 \\
\hline
100 \\
-\ 90 \\
\hline
100 \\
-\ 90 \\
\hline
100 \\
-\ 90 \\
\hline
\end{array}
$$

1.0666 Ans

EXERCISE: 2.2

Q.1: Verify the following.

1) $\frac{1}{2} \times (\frac{3}{4} + \frac{5}{6}) = \frac{1}{2} \times \frac{3}{4} + \frac{1}{2} + \frac{5}{6}$

Sol: Take LHS:

$\frac{1}{2} \times (\frac{3}{4} + \frac{5}{6})$

$= \frac{1}{2} \times (\frac{3 \times 6}{4 \times 6} + \frac{5 \times 4}{6 \times 4})$

$= \frac{1}{2} \times \frac{18}{24} + \frac{20}{24}$

$= \frac{1}{2} \times \frac{18+20}{24}$

$= \frac{1}{\cancel{2}_{1}} \times \frac{\cancel{38}}{24} 19$

$= \frac{19}{24}$

Ta ke RHS:

$= \frac{1}{2} \times \frac{3}{4} + \frac{1}{2} \times \frac{5}{6}$

$= \frac{3}{8} + \frac{5}{12}$

$= \frac{3 \times 6}{8 \times 6} + \frac{5 \times 4}{12 \times 4} = \frac{18}{48} + \frac{20}{48} = \frac{18+20}{48}$

$= \frac{\cancel{38}}{\cancel{48}} = \frac{19}{24}$ LHS = RHS

$\frac{19}{24} = \frac{19}{24}$ Hence proved

ii) $\frac{3}{4} \times (\frac{8}{9} + \frac{5}{4}) = \frac{3}{4} \times \frac{8}{9} + \frac{3}{4} \times \frac{5}{4}$

Sol: **Take LHS:**

$= \frac{3}{4} \times \left(\frac{8}{9} \times \frac{5}{4} \right)$

$= \frac{3}{4} \times \left(\frac{8 \times 4}{9 \times 4} \times \frac{5 \times 9}{4 \times 9} \right)$

$= \frac{3}{4} \times \left(\frac{32}{36} \times \frac{45}{36} \right)$

$= \frac{3}{4} \times \left(\frac{32+45}{36} \right)$

$= \frac{\cancel{13}}{4} \times \frac{77}{\cancel{36}_{12}}$

$= \frac{77}{48}$

Take RHS:

$= \frac{3}{4} \times \frac{8}{9} \times \frac{3}{4} \times \frac{5}{4}$

$= \frac{24}{36} + \frac{15}{16}$

$= \frac{24 \times 4}{36 \times 4} \times \frac{15 \times 9}{16 \times 9} = \frac{96}{144} + \frac{135}{144}$

$= \frac{96+135}{144} = \frac{\cancel{231}}{\cancel{144}} = \frac{77}{48}$

= LHS = RHS

77/48 = 77/48 Hence proved.

iii) $\frac{5}{6} \times \left(\frac{12}{13} \times \frac{6}{5} \right) = \frac{5}{6} \times \frac{12}{13} \times \frac{5}{6} \times \frac{6}{5}$

Sol: **Take LHS:**

$= \frac{5}{6} \times \left(\frac{12}{13} \times \frac{5}{6} \right)$

$= \frac{5}{6} \times \left(\frac{12}{13} \times \frac{6}{5} \right)$

$= \frac{5}{6} \times \left(\frac{12 \times 5}{13 \times 5} \right) \times \left(\frac{6 \times 13}{5 \times 13} \right)$

$= \frac{5}{6} \times \left(\frac{60}{65} \times \frac{78}{65} \right)$

$= \frac{5}{6} \times \left(\frac{60 \times 78}{65} \right)$

$= 1\frac{\cancel{5}}{\cancel{6}} \times \frac{\cancel{138}^{23}}{\cancel{65}_{13}} = \frac{23}{13}$

Take RHS:

$\frac{5}{\cancel{6}_1} \times \frac{\cancel{12}^2}{13} \times \frac{5}{\cancel{6}_1} \times \frac{\cancel{6}^1}{5}$

$= \frac{10}{13} + \frac{5}{5}$

$= \frac{10 \times 5}{13 \times 5} + \frac{5 \times 13}{5 \times 13}$

$= \frac{50}{65} + \frac{65}{65} = \frac{50+65}{65} = \frac{115}{65}$

$= \frac{23}{13}$

LHS = RHS

$\frac{23}{13} = \frac{23}{13}$ Hence Proved

(iv) $\frac{5}{7} \times \left(\frac{3}{7} + \frac{7}{3}\right) = \frac{5}{7} \times \frac{3}{7} \times \frac{5}{7} \times \frac{7}{3}$

Sol: **Take LHS:**

$= \frac{10}{13} \times \left(\frac{3}{7} \times \frac{7}{3}\right)$

$= \frac{5}{7} \times \left(\frac{3 \times 7}{7 \times 3} + \frac{7 \times 7}{3 \times 7}\right)$

$= \frac{5}{7} \times \left(\frac{9}{21} + \frac{49}{21}\right)$

$= \frac{5}{7} \times \left(\frac{9+49}{21}\right)$

$= \frac{5}{7} \times \frac{58}{21}$

$= \frac{90}{147}$

Take RHS:

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

$= \frac{15}{49} + \frac{35}{21}$

$= \frac{15 \times 3}{49 \times 3} + \frac{35 \times 7}{21 \times 7} = \frac{45}{147} + \frac{245}{147}$

$= \frac{45 \times 245}{147} \qquad = \frac{290}{147}$

LHS = RHS

$\frac{290}{147} = \frac{290}{147}$

Hence Proved

(v) $\frac{7}{8} \times \left(\frac{3}{4} + \frac{2}{7}\right) = \frac{7}{8} \times \frac{3}{4} + \frac{7}{8} \times \frac{2}{7}$

Sol: **Take LHS:**

$= \frac{7}{8} \times \left(\frac{3}{4} + \frac{2}{7}\right)$

$= \frac{7}{8} \times \left(\frac{3 \times 7}{4 \times 7} + \frac{2 \times 4}{7 \times 4}\right)$

$= \frac{7}{8} \times \left(\frac{21}{28} + \frac{8}{28}\right)$

$= \frac{7}{8} \times \left(\frac{21+8}{28}\right)$

$= \frac{\cancel{7}^{1}}{8} \times \frac{29}{\cancel{28}_{4}}$

$= \frac{29}{32}$

Take RHS:

$= \frac{7}{8} \times \frac{3}{4} + \frac{\cancel{7}}{8} \times \frac{2}{7}$

$= \frac{7}{8} \times \frac{3}{4} + \frac{\cancel{7}}{8} \times \frac{2}{\cancel{7}}$

$= \frac{21}{32} + \frac{2}{8} = \frac{21 \times 1}{32 \times 1} + \frac{2 \times 4}{8 \times 4}$

$= \frac{21}{32} + \frac{8}{32} = \frac{21+8}{32} + \frac{29}{32}$

LHS = RHS

$\frac{29}{32} = \frac{29}{32}$

Hence Proved

(vi) $\frac{1}{3} \times \left(\frac{2}{5} - \frac{3}{4}\right) = \frac{1}{3} \times \frac{2}{5} - \frac{1}{3} \times \frac{3}{4}$

Sol: **Take LHS:**

$= \frac{1}{3} \times \left(\frac{2}{5} - \frac{3}{4}\right)$

$= \frac{1}{3} \times \left(\frac{2 \times 4}{5 \times 4} - \frac{3 \times 5}{4 \times 5}\right)$

$= \frac{1}{3} \times \left(\frac{8}{20} - \frac{15}{20}\right)$

$= \frac{1}{3} \times \left(\frac{8-15}{20}\right)$

$= \frac{1}{3} \times \frac{-7}{20}$

$= \frac{-7}{60}$

Take RHS:

$= \frac{1}{3} \times \frac{2}{5} - \frac{1}{3} \times \frac{3}{4}$

$= \frac{1}{3} \times \frac{2}{5} - \frac{1}{\cancel{3}} \times \frac{\cancel{3}}{4}$

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

$= \frac{2 \times 4}{15 \times 4} - \frac{1 \times 15}{4 \times 15} = \frac{8}{60} - \frac{15}{60} = \frac{8-15}{60} = \frac{-7}{60}$

LHS = RHS

$\frac{-7}{60} = \frac{-7}{60}$

Hence Proved

(vii) $\frac{3}{4} \times \left(\frac{1}{2} - \frac{1}{3}\right) = \frac{3}{4} \times \frac{1}{2} - \frac{3}{4} \times \frac{1}{3}$

Sol: **Take LHS:**

$= \frac{3}{4} \times \left(\frac{1}{2} - \frac{1}{3}\right)$

$= \frac{3}{4} \times \left(\frac{1 \times 3}{2 \times 3} - \frac{1 \times 2}{3 \times 2}\right)$

$= \frac{3}{4} \times \left(\frac{3}{6} - \frac{2}{6}\right)$

$= \frac{3}{6} \times \left(\frac{3-2}{6}\right)$

$= \frac{\cancel{3}^{1}}{4} \times \frac{1}{\cancel{6}_{2}}$

$= \frac{1}{8}$

Take RHS:

$= \frac{3}{4} \times \frac{1}{2} - \frac{3}{4} \times \frac{1}{3}$

$= \frac{3}{4} \times \frac{1}{2} - \frac{\cancel{3}^{1}}{4} \times \frac{1}{\cancel{3}_{1}}$

$= \frac{3}{8} - \frac{1}{4} = \frac{3 \times 4}{8 \times 4} - \frac{1 \times 8}{4 \times 8} = \frac{12}{32} - \frac{8}{32}$

$= \frac{12-8}{32} = \frac{\cancel{4}^{1}}{\cancel{32}_{8}} = \frac{1}{8}$

LHS = RHS

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

Hence Proved

(viii) $\frac{3}{4} \text{ x } (\frac{7}{2} - \frac{5}{2}) = \frac{3}{4} \text{ x } \frac{7}{2} - \frac{3}{4} \text{ x } \frac{5}{2}$

Sol: **Take LHS:**

$= \frac{3}{4} \text{ x } (\frac{7}{2} - \frac{5}{2})$

$= \frac{3}{4} \text{ x } (\frac{7-5}{2})$

$= \frac{3}{\cancel{4}_2} \text{ x } \frac{\cancel{2}}{2}$

$= \frac{3}{4}$

Take RHS:

$= \frac{3}{4} \text{ x } \frac{7}{2} - \frac{3}{4} \text{ x } \frac{5}{2}$

$= \frac{21}{8} - \frac{15}{8}$

$= \frac{21-15}{8} = \frac{\cancel{6}^3}{\cancel{8}_4} = \frac{3}{4}$

LHS = RHS

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

Hence Proved

(ix) $\frac{3}{5} \text{ x } (\frac{7}{18} - \frac{10}{9}) = \frac{3}{5} \text{ x } \frac{7}{18} - \frac{3}{5} \text{ x } \frac{10}{9}$

Sol: **Take LHS:**

$= \frac{3}{5} \text{ x } (\frac{7}{18} - \frac{10}{9})$

$= \frac{3}{5} \text{ x } (\frac{7 \text{ x } 1}{18 \text{ x } 1} - \frac{20}{18})$

$= \frac{\cancel{3}^1}{5} \text{ x } \frac{-13}{\cancel{18}_6}$

$= -\frac{13}{30}$

Take RHS:

$= \frac{3}{5} \text{ x } \frac{7}{18} - \frac{3}{5} \text{ x } \frac{10}{9}$

$= \frac{21}{90} - \frac{30}{45}$

$= \frac{21 \text{ x } 1}{90 \text{ x } 1} - \frac{30 \text{ x } 2}{45 \text{ x } 2}$

$= \frac{21}{90} - \frac{60}{90} = \frac{-39}{90} = \frac{-13}{30}$

LHS = RHS

$\frac{-13}{30} = \frac{-13}{30}$

Hence Proved

(x) $(\frac{7}{3}-\frac{3}{7}) \times \frac{3}{10} = \frac{7}{3} \times \frac{3}{10} - \frac{3}{7} \times \frac{3}{10}$

Sol: **Take LHS:**

$= (\frac{7}{3}-\frac{3}{7}) \times \frac{3}{10}$

$= (\frac{7 \times 7}{3 \times 7}-\frac{3 \times 3}{7 \times 3}) \times \frac{3}{10}$

$= (\frac{49}{21}-\frac{9}{21}) \times \frac{3}{10}$

$= \frac{4}{7}$

Take RHS:

$= \frac{7}{3} \times \frac{3}{10} - \frac{3}{7} \times \frac{3}{10}$

$= \frac{7}{\cancel{3}_1} \times \frac{\cancel{3}^1}{10} - \frac{3}{7} \times \frac{3}{10}$

$= \frac{7}{10} - \frac{9}{70} = \frac{7 \times 7}{10 \times 7} - \frac{9 \times 1}{70 \times 1}$

$= \frac{49}{70} - \frac{9}{70} = \frac{49-9}{70} = \frac{\cancel{40}^4}{\cancel{70}_7}$

$= \frac{4}{7}$

LHS = RHS

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

Hence Proved

EXERCISE 2.3

Q.1 Simplify the following using distributive properties.

1) $\frac{3}{5} \times (\frac{5}{6}+\frac{1}{9})$

Solution:

$\frac{3}{5} \times (\frac{5}{6}+\frac{1}{9})$

$\frac{3}{5} \times (\frac{45+6}{54})$

$\frac{\cancel{3}^1}{5} \times \frac{51}{\cancel{54}_{18}}$

$\frac{51}{90}$ Answer

2) $\frac{4}{9} \times (\frac{7}{8}-\frac{3}{4})$

Solution:

$\frac{4}{9} \times (\frac{7}{8}-\frac{3}{4})$

$\frac{4}{9} \times \frac{28-24}{32}$

$\frac{4}{9} \times \frac{4}{32}$

$\frac{1}{18}$ Answer

3) $\frac{7}{8} \times (\frac{4}{5}+\frac{4}{7})$

Solution

$\frac{7}{8} \times (\frac{4}{5}+\frac{4}{7})$

$\frac{7}{8} \times (\frac{28+20}{35})$

$\frac{\cancel{7}^1}{\cancel{8}_1} \times \frac{\cancel{48}^6}{\cancel{35}_5}$

$\frac{6}{5}$ Ans

4) $1\frac{1}{2} \times (\frac{3}{4}+\frac{1}{2})$

Solution

$1\frac{1}{2} \times (\frac{3}{4}+\frac{1}{2})$

$\frac{3}{2} \times (\frac{6-4}{8})$

$\frac{3}{2} \times \frac{2}{8}$

$\frac{\overset{3}{\cancel{6}}}{\underset{8}{\cancel{16}}}$ Ans

5) $3\frac{3}{5} \times (1\frac{1}{6} + 1\frac{2}{3})$

Solution

$3\frac{3}{5} \times (1\frac{1}{6} + 1\frac{2}{3})$

$\frac{18}{5} \times (\frac{6}{6} \times \frac{5}{3})$

$\frac{18}{5} \times (\frac{21+30}{18})$

$\frac{\cancel{18}}{5} \times \frac{51}{\cancel{18}} = \frac{51}{5}$ Ans

6) $2\frac{1}{4} \times (1\frac{2}{5} - \frac{9}{10})$

Solution

$2\frac{1}{4} \times (1\frac{2}{5} - \frac{9}{10})$

$\frac{9}{4} \times (\frac{7}{5} \times \frac{9}{10})$

$\frac{9}{4} \times (\frac{70-45}{50}$

$\frac{9}{4} \times \frac{25^{1}}{50_{2}} = \frac{\cancel{9}}{\cancel{4}} \times \frac{1}{2} = \frac{9}{8}$ Ans

7) $(\frac{3}{8} \times \frac{1}{6}) + (\frac{3}{8} \times \frac{4}{9})$

Solution

$(\frac{3}{8} \times \frac{1}{6}) + (\frac{3}{8} \times \frac{4}{9})$

$\frac{3}{8} \times (\frac{1}{6} \times \frac{4}{9})$

$\frac{3}{8} \times (\frac{9+24}{54})$

$\frac{3}{8} \times \frac{33}{54}$ (1 1; $\cancel{99}$; $\cancel{432}$; 48)

$\frac{11}{48}$ Answer

8) $(\frac{6}{7} \times \frac{2}{3}) - (\frac{3}{4} \times \frac{2}{3})$

Solution

$(\frac{6}{7} \times \frac{2}{3}) - (\frac{3}{4} \times \frac{2}{3})$

$\frac{2}{3} \times (\frac{6}{7} - \frac{3}{4})$

$\frac{2}{3} \times (\frac{24-21}{28})$

$\frac{2}{3} \times \frac{3}{28}$ (1; $\cancel{6}$; $\cancel{84}$; 14)

$\frac{1}{14}$ Answer

9) $(\frac{5}{8} \times \frac{3}{2}) - (\frac{5}{8} \times \frac{4}{5})$

Solution

$(\frac{5}{8} \times \frac{3}{2}) - (\frac{5}{8} \times \frac{4}{5})$

$\frac{5}{8} \times (\frac{3}{2} - \frac{4}{5})$

$\frac{5}{8} \times (\frac{15-8}{10})$

$\frac{5}{8} \times \frac{7}{10}$ (7; $\cancel{35}$; $\cancel{80}$; 16)

$\frac{7}{16}$ Answer

10) $(3\frac{4}{9} \times 2\frac{2}{11}) - (2\frac{1}{9} \times 2\frac{2}{11})$

Solution

$(3\frac{4}{9} \times 2\frac{2}{11}) - (2\frac{1}{9} \times 2\frac{2}{11})$

$(\frac{31}{9} \times \frac{23}{11}) - (\frac{19}{9} - \frac{23}{11})$

$\frac{23}{11} \times (\frac{31}{9} - \frac{19}{9})$

$\frac{23}{11} \times (\frac{31-19}{9})$

$\frac{23}{11} \times \frac{12}{9} = \frac{276}{99}$

Answer

Exercise 2.4

Simplify the following:

1) $[\frac{1}{2} + \{(\frac{3}{4} \div \frac{9}{16}) \times 1\frac{1}{2}\} - 2\frac{1}{4}]$

Solution:

R.W

2	2,15,5
5	1,15,5
3	1,1,1

➢ $[\frac{1}{2} + \{(\frac{3}{4} \times \frac{9}{16}) \times 1\frac{1}{2}\} - 2\frac{1}{4}]$

$[\frac{1}{2} + \{(\frac{\cancel{3}^{1}}{\cancel{4}} \times \frac{\cancel{16}^{4}}{\cancel{9}_{3}}) \times \frac{3}{2}\} - \frac{9}{4}]$

$[\frac{1}{2} + \frac{2}{1} - \frac{9}{4}]$ $\qquad \frac{2+8-9}{4}$

$\frac{1}{2} + \frac{2}{1} - \frac{9}{4}$ $\qquad \frac{10-9}{4}$

$\frac{(1)(2)+(2)(4)-(9)(1)}{4}$ $\qquad \frac{1}{4}$ Answer

2) $3\frac{1}{2} + \{(10\frac{2}{5} - 5\frac{1}{3}) + 3\frac{2}{3}\} - 1\frac{1}{5}$

Solution:

$3\frac{1}{2} + \{(10\frac{2}{5} - 5\frac{1}{3}) + 3\frac{2}{3}\} - 1\frac{1}{5}$

$\frac{7}{2} + \{(\frac{52}{5} - \frac{16}{3}) + \frac{11}{3}\} - \frac{6}{5}$

$\frac{7}{2} + \{(\frac{(52)(3)-(16)(5)}{15}\} + \frac{11}{3} - \frac{6}{5}$

$\frac{7}{2} + \{\frac{156-80}{15} + \frac{11}{3}\} - \frac{6}{5}$

5	5,15,5
5	1,15,5
3	1,3,1
	1,1,1

$\frac{7}{2} + \{\frac{76}{15} + \frac{11}{3}\} - \frac{6}{5}$

$\frac{7}{2} + \{\frac{(76)(3)+(11)(15)}{15}\} - \frac{6}{5}$ 2x5x3 = 30

$\frac{7}{2} + \{\frac{228+165}{15}\} - \frac{6}{5}$

$\frac{7}{2} + \frac{393}{15} - \frac{6}{5}$

$\frac{(7)(15)+(393)(2)-(6)(6)}{30}$

$\frac{891+786-36}{30} = \frac{855}{30} = \frac{171}{16}$ Ans

3) $[(2\frac{3}{4} + 1\frac{2}{6}) \times (1\frac{1}{5} \div \frac{2}{5})]$

Solution:

$[(\frac{11}{4} + \frac{8}{6}) \times (\frac{6}{5} \div \frac{2}{5})]$

$[(\frac{(11)(6)+(8)(4)}{24} \times (\frac{6^3}{5} \times \frac{5^1}{2})]$

$[(\frac{66+32}{24}) \times \frac{3}{1}]$

$[\frac{98}{24} \times \frac{1}{3}]$ $\frac{98}{72}$ Ans

4) $[\{(\frac{1}{2} \frac{-1}{3}) + (1\frac{2}{3} \div \frac{1}{9})\} - \{(\frac{5}{3} \frac{-1}{6}) \div \frac{9}{6}\}]$

$[\{(\frac{(1)(3)-(2)(1)}{6}) + (\frac{5}{3} \div \frac{1}{9})\} - \{(\frac{5}{3} \frac{-1}{6}) \div \frac{9}{6}\}]$

$[\{(\frac{3-2}{6}) + (\frac{5}{3} \times \frac{9^3}{1})\} - \{\frac{5}{3} - \frac{1}{6}) \div \frac{9}{6}\}]$

$[\{\frac{1}{6} + \frac{15}{1}\} - \{(\frac{(5)(6)-(1)(3)}{18}) \div \frac{9}{6}\}]$

$[\{\frac{1}{6} + \frac{15}{1}\} - \{(\frac{30-3}{18}) \div \frac{9}{6}\}]$

$[\{\frac{1}{6} + \frac{15}{1}\} - \{\frac{27}{18} \div \frac{9}{6}\}]$

$[\{\frac{(1)(1)+(15)(6)}{6}\} - \{\frac{27^9}{18_2} \times \frac{9^1}{3_1}\}]$

$[\{\frac{1+90}{6}\} - \frac{9}{1}]$

$[\frac{91}{6} - \frac{9}{1}]$

$[\frac{(91)(1)-(9)(6)}{6}$

$\frac{91-54}{6}$

$\frac{37}{6}$ Ans

5) $1\frac{1}{2} - [\frac{1}{3} \div \{\frac{2}{5} \div (\frac{4}{5} - \frac{1}{10} + \frac{3}{5})\}]$

$\frac{3}{2} - [\frac{1}{3} \div \{\frac{2}{5} \div (\frac{(4)(2)-(1)(1)+(3)(2)}{10})\}]$

$\frac{3}{2} - [\div \{\frac{2}{5} \div (\frac{8-1+6}{10})\}]$

$\frac{3}{2} - [\frac{1}{3} \div \{\frac{2}{5} \div \frac{13}{10})\}]$

$\frac{3}{2} - [\frac{1}{3} \div \{\frac{2}{\cancel{5}} \times \frac{\cancel{10}^{2}}{13}\}]$

$\frac{3}{2} - [\frac{1}{3} \div \frac{4}{13}]$

$\frac{3}{2} - [\frac{1}{3} \times \frac{13}{4}]$

$\frac{3}{2} - \frac{13}{12} \quad [\frac{3(6) - 13(1)}{12}] = \frac{18-13}{12} = \frac{5}{12}$ Ans

6) $(\frac{2}{3} - \frac{3}{4} \times \frac{1}{8}) \div (\frac{2}{3} - \frac{3}{4} + \frac{5}{8})$

$(\frac{8-9}{12} \times \frac{1}{8}) \div (\frac{2}{3} - \frac{(3)(8)+(5)(4)}{32})$

$(\frac{1}{12} \times \frac{8}{1}) \div (\frac{2}{3} - \frac{44}{32})$

$\frac{8}{12} \div (\frac{(2)(32)-(44)(3)}{96})$

$\frac{8}{12} \div \frac{64-132}{96} = \frac{68}{96}$

$\frac{\cancel{8}}{\cancel{12}} \times \frac{96^{8}}{68} = \frac{64}{68} = \frac{16}{17}$ Ans

7) $[2\frac{1}{2} \times \{3\frac{1}{2} - \frac{1}{2} + (\frac{5}{3} - \frac{1}{6})\}] + \frac{1}{6}$

$[\frac{5}{3} \times \{\frac{7}{2} - \frac{1}{2} + (\frac{30-3}{18})\}] + \frac{1}{6}$

$[\frac{5}{3} \times \{\frac{7}{2} - \frac{1}{2} + \frac{27}{18}\}] + \frac{1}{6}$

$[\frac{5}{2} \times \{\frac{(7)(9)-(1)(9)+(27)(1)}{18}\}] + \frac{1}{6}$

$[\frac{5}{2} \times \{\frac{63-9+27}{18}\}] + \frac{1}{6}$

$[\frac{5}{2} \times \{\frac{81}{18}\}] + \frac{1}{6}$

6	6, 36
6	1, 6
	1, 1

$[\frac{5}{2} \times \frac{405}{36}] + \frac{1}{6}$

$\frac{(405)(1)+(1)(6)}{36} = \frac{411}{36}$ Ans

8) $(3\frac{1}{2} \times 5\frac{1}{3} - 10\frac{1}{3}) \times (3\frac{1}{8} \times 6\frac{1}{2} \div 2\frac{1}{6})$

$(\frac{7}{2} \times \frac{16}{3} - \frac{31}{3}) \times (\frac{25}{8} \times \frac{13}{2} \div \frac{13}{6})$

$(\frac{7}{2} \times (\frac{(16)(1)-(1)(31)}{9}) \times (\frac{325}{16} \times \frac{6}{13})$

$(\frac{7}{2} \times \frac{15}{3}) \times (\frac{325}{16} \times \frac{6}{13})$

$\frac{105}{6} \times \frac{1950}{208}$

$\frac{204750}{1448}$ Ans

9) $(2\frac{1}{5} \div 3\frac{2}{23}) \times 4\frac{2}{5} \div (3 - \frac{2}{5})$

$(\frac{11}{5} \div \frac{71}{23}) \times \frac{22}{5} \div (\frac{3-2}{5})$

$(\frac{11}{5} \div \frac{71}{23}) \times \frac{22}{5} \times \frac{1}{5}$

$(\frac{11}{5} \times \frac{23}{71}) \times \frac{22}{5} \times \frac{5}{1}$

$\frac{253}{355} \times \frac{22}{1} = \frac{5566}{355}$ Ans

10) $\frac{5}{2} \times \left(\frac{5}{6} - \frac{2}{3}\right) \div \frac{2}{5} \times \left(1\frac{3}{5} + 2\frac{6}{25}\right)$

$\frac{5}{2} \times \left(\frac{5}{6} - \frac{2}{3}\right) - \frac{2}{3} \times \left(\frac{8}{5} + \frac{56}{25}\right)$

$\frac{5}{2} \times \left(\frac{5-4}{6}\right) - \frac{2}{3} \times \left(\frac{8 \times 5 + 56 \times 1}{25}\right)$

$\frac{5}{2} \times \left(\frac{1}{6}\right) - \frac{2}{3} \times \left(\frac{40+56}{25}\right)$

$\frac{5}{12} - \frac{2}{3} \times \frac{96}{25}$

$\frac{5-8}{12} \times \frac{96}{25}$

$\frac{-3}{\cancel{12}_1} \times \frac{\cancel{96}^8}{25}$ $\frac{-24}{25}$ Ans

Exercise 2.5

Simplify the following.

1) 0.3 x [2.5 + { 2.9 + (1.5 + 2.8)}]

Solution:

- 0.3 x [2.5 + { 2.9 + 4.3}]
  0.3 x [2.5 + 7.2]
  0.3 x 9.7
  2.91 Answer.

2) 3.5 x [1.7 + { 1.95 – (7.3 – 2.2)}]

Solution:

3.5 + [1.7 + { 1.95 – 5.1}]
3.5 + [1.7 – 3.15]
3.5 + –1.45
2.05 Answer

3) 9.25 [0.9 + 2.05 (1.5 + 2.5 – 2)]

Solution:

9.25 [0.9 + 2.05 (1.5 + 0.5)]
9.25 [0.9 + 2.05 +2]
9.25 [0.9 + 4.05]
9.25 + 4.95
14.2 Answer

4) 7.45 – [0.35 + { 1.5 x (2.5 – 1.5 + 3.5)}]

Solution:

7.45 – [0.35 + {1.5 x (1+ 3.5)}]
7.45 – [0.35 + { 1.5 x 4.5}]
7.45 – [0.35 + 6.75]
7.45 – 7.1
0.35 Answer

5) 1.9 x [2.3 x { 3.6 – (1.2 + 1.4)}]

Solution:

1.9 x [2.3 x {3.6 – 2.6}]
1.9 x [2.3 x1]
1.9 x 2.3
4.37 Answer

6) {(0.3 x 2.5) 0.5} + 1.5 x 0.05

Solution:

{ 0.75 + 0.5} + 0.075
1.25 + 0.075 = 1.325 Answer

7) $2.297 + [0.2 \times \{ 9 + 0.3\} - 0.09]$

Solution:

$2.297 + [0.2 \times 9.3 - 0.09]$

$2.297 + [1.86 - 0.09]$

$2.297 + 1.77$

4.067 Answer.

8) $\{(2.5 - 2) + 1.5\} \times 0.5 - 0.5$

Solution:

$\{ 0.5 + 1.5\} \times 0.5 - 0.05$

2×0.45

0.9 Answer.

9) $[\{7.45 - 1.35 + 1.5\} \times 2.5] \div 1.25$

Solution:

$[\{ 6.1 + 1.5 \} \times 2.5] \div 1.25$

$[7.6 \times 2.5] 1.25$

$19 \div 1.25$

15.2 Answer

10) $[\{(1.2 + 0.8) \times 0.5\} + 3.4] \div 0.4$

Solution:

$[\{ 0.4 \times 0.5 \} + 3.4] \div 0.4$

$[0.2 + 3.4] \div 0.4$

$3.6 \div 0.4$

9 Answer

Exercise 2.6

1) Bilal sacrificed a goat and got $13\frac{5}{7}$ kg of meat. He gave one third of in charity. He much meat has left with him?

Solution:

- $13\frac{5}{7} = 9\frac{1}{7}$ Answer

2) There are 100 pages in a book. Aiman read $\frac{3}{5}$ of the book. How many pages are still left to read?

Solution:

- 40 pages. Answer.

3) Sameer solved 15 questions out of 25 questions of mathematics find the fractions of solved and unsolved questions.

Solved:

$-\frac{2}{5}$ Answer

4) Find two third of 18300.

Solution:

- 12, 200 Answer.

5) Find halfone third two third and there fourth of 13374.

- 6687, 4458, 8916, 10030,5 Answer.

6) Aslam has $2\frac{3}{4}$ b second. He gives $1\frac{1}{2}$ breads in charity. How many breads left with Aslam?

Solution:

- $\frac{1}{4}$1Answer

7) A farmer planted 925 plants of tomatoes. After some day 17 plants died what fractions of plants died?

Solution:

- $\frac{1}{25}$ Answer

8) Rashid purchased $18\frac{3}{4}$ meter of cloths. She made a dress from one third of the cloth. Find the cloth consumed for dress?

Solution:

➢ $12\frac{1}{2}$ meters.

9) Tahira had Rs. 1000. Fortieth part of the amount was given in zakat fund. Find the amount given in zakat fund and amount left was Tahira?

Solution:

➢ Rs. 25, Rs. 975 Answer

10) Ammara saved Rs. $375\frac{1}{2}$ from pocket money.she purchased books for Rs. $133\frac{3}{4}$ .find the amount left her?

Solution:

➢ $241\frac{3}{4}$

11) Saad has Rs $2875\frac{1}{2}$. he went to purchased a computer game of worth Rs. 3000. Find the more money required to purchased a computer game?

Solution:

➢ $124\frac{1}{2}$ Answer

Exercise 2.7

1) A person purchased some medicines of worth.

Rs. 21.90, Rs. 42.32, Rs. 55.40 and Rs. 78.40. find the amount paid by him.

Solution:

➢ 21.90 + 42.32 + 55.40 + 78.40 = Rs. 198 Answer

2) Adil purchased some staff for house of worth Rs. 50.55, Rs 37. 25, Rs 55. 75 and Rs 125. 90 find the total amount of be paid by Adil.

Solution:

➢ 50. 55 + 37.25 + 55.75 + 125.90 = Rs. 269. 4 Answer.

3) Hina bought some staff for her useof worth Rs. 55.25, Rs. 45.50 Rs. 45.25, Rs. 135.45. How much money has to be paid by Hina?

Solution:

➢ 55.25 + 45.50 + 45.25 + 135.45 = Rs. 281.45 Answer.

4) A family paid their utility bills as, for electric Rs . 525.50, for gas Rs. 210.75 and for telephone Rs. 760.50 How much they have to pay for their utility bills?

➢ 525.50 + 210.75 + 760. 50 = Rs. 1, 496.75 Answer.

5) There families live together and they hare all the utility bills equally. It for are month their electric bills is Rs. 1954.50. gas bills is Rs. 737.70 and phone bills is Rs 1374.50. final the amount payable by each family.

Solution:

➢ 1954.50 + 737.70 + 1374.50 = Rs. 1355.56. Answer.

Chapter 3

RATIO AND PROPORTION

Exercise: 3.1

Q.1: Find the ratio of the following quantities

1) 8 rupees and 24 rupees.

Solution:

8 : 24

$\frac{\cancel{8}^{1}}{\cancel{24}_{3}} = 1 : 3$

Ans

2) 12 Pencils and 48 Pencils.

Solution:

12.48

$\frac{\cancel{12}^{1}}{\cancel{48}_{4}} = 1 : 4$

Ans

3) 13 goats and 65 goats

Solution:

13 : 65

$\frac{\cancel{13}^{1}}{\cancel{65}_{5}} = 1 : 5$

Ans

4) 15 books and 35 books.

Solution:

15:35

$\frac{\cancel{15}^{3}}{\cancel{35}_{7}} = 3 : 7$

Ans

5) 20 girls and 50 boys.

Solution:

20 : 50

$\frac{\cancel{20}^{2}}{\cancel{50}_{5}} = 2 : 5$

Ans

6) 24 months and 64 months.

Solutions:

24 : 64

$\frac{\cancel{24}^{3}}{\cancel{64}_{8}} = 3 : 8$

Ans

7) 50 Marbals and 150 marbals.

Solution:

50 : 150

$\frac{\cancel{50}^{1}}{\cancel{150}_{3}} = 1 : 3$

Ans

8) 200 coins and 450 coins.

Solution:

200 : 450

$\frac{\cancel{200}^{4}}{\cancel{450}_{9}} = 4 : 9$

An

Q.2: Express the following ratio in the simplified form:

1) 3kg and 1000 grams

Solution:

3 : 1000

$\frac{3}{1000} =$

Ans

2) 2 hours and 40 minutes.

Solution:

2 : 40

$\frac{\cancel{2}}{\cancel{40}} = 1 : 20$

Ans

3) 3 meters and 45 centimeter.

Solution:

3 : 45

$\frac{300}{45} = \frac{60}{9} = \frac{20}{3}$

20 : 3 Ans

4) 3 feet and 9 inches

Solution:

3 : 9

$\frac{\cancel{3}}{\cancel{9}} = 1 : 3$

Ans

5) 11 months and 3 years

Solution:

11 : 36

$\frac{11}{36}$ =

Ans

6) 4 mins and 40 sec

Solution:

4 : 40 or 240 sec : 40:

$\frac{240}{40}$ = 6 : 1

Ans

7) 5 rupees and 50 paisa

Solution:

5 : 50

$\frac{5}{50}$ = 1 : 10

Ans

8) 2 liters and millimeters.

Solution:

2 : 750

$\frac{2}{750}$ = 8 : 3

Ans

Q.3: The weights of Anwar and Faiza are 25 kilograms and 15 kilograms. Find the ratio.

Below their weight.

Solution:

- 25 : 15 , $\frac{25}{15}$ (5, 3) = 5 : 3 Answer

Q.4: I have Rs. 120 and Nargis has Rs.480.Find the ratio blow my money to that of Nargis.

Solution:

- 120 : 480, $\frac{120}{480}$ (1, 4) = 1 : 4 Answer.

Q.5: A bus covers a distance of 80 kilometers at an average speed of 65 km/ hours A car also covers the same at distance an average of 52 km/ hour. What is the ratio blw the speed of the bus and car?

Solution:

80 : 52

$\frac{80}{52} = \frac{40}{20} = \frac{20}{13}$ = 20 : 13 Ans

6) A boy took 42 hours to complete 5 exercise of the books. Another boy took 36 hours to complete 5 exercise.Find the ratio blw the time taken by the two boys.

Solution:

- 1h = 60 mins

  42 x 60 = 2520 mins, 36 x 60 = 2160 mins

  $\frac{2520}{2160}$ = 7 : 6 Ans

7) In a rectangle the length of a side is 15cm and the breadth is sum.Find the ratio blw length and breadth.

Solution:

- 15 : 5 , $\frac{15}{5}$ = 3 : 1 Answer

8) These are 80 pages in a mathematics books and 120 pages in urdu book. What is the ratio of the number of pages of the mathematics to the numbers of pages of the urdu book?

Solution:

- 80 : 120, $\frac{\overset{2}{\cancel{80}}}{\underset{3}{\cancel{120}}}$ = 2 : 3 Answer

9) A shopkeeper gained Rs. 160 as profit on selling rice and gained Rs. 480 as profit on selling sugar. What is the ratio blw the profit of rice and sugar?

Solution:

- 160 : 480

$\frac{\cancel{160}}{\cancel{480}}$ = 1 : 3 Answer.

10) Imran is 40 years and 3 months old. His friend Abrar is 35 years and 5 months old. Find the ratio of imran's age to that of Abrar?

Solution:

- 1 year = 12
  12 x 40 = 480, 480 + 3 = 483
  12 x 35 = 420 , 420 + 5 = 425
  483 : 425 Answer.

Exercise: 3.2

Q.1: Divided Rs. 80 blw Maheen and Tazeen in the ratio of 3 and 1.

Solution:

Ratio blw Maheen and Tazeen = 3 : 1
Sum of the ratio = 3 + 1 = 4
Amount to be divided = Rs. 80

1) Share to maheen in Rs.80 = $\frac{3}{\cancel{4}}$ x $\cancel{80}$ = 3 x 20 = Rs.60.

2) Share to Tanzeen in Rs. 80 = $\frac{3}{4}$ x $\overset{80}{\cancel{80}}$ = 1 x 20 = Rs. 20

Hence : Maheen = 60 rupees
Tazeen = 20 rupees Answer

Q.2 Divide Rs. 275 among A, B and C in the ratio of 2 : 3 : 5.

Solution:

- 2 : 3 : 5
  2 + 3 + 5 = 10

Share of A in Rs. 175 = $\frac{2}{\cancel{10}}$ x $\cancel{275}$ = 2 x 55 = 110

Share of B in Rs. 275 = $\frac{3}{\cancel{10}}$ x $\cancel{275}$ = 3 x 55 = 165

Share of C in Rs. 275 = $\frac{5}{\cancel{10}}$ x $\cancel{275}$ = 5 x 55 = 275

Answer

Q.3: There are 26 parrots and pigeons in a cage. If the ratio of the numbers blw them 5 : 8 then. Find their individual numbers.

Solution:

- Ratio blw = 5 : 8
  Sum of the ratio = 5 + 8 = 13
  Amount to be divided in 26

$\frac{5}{\cancel{13}}$ x $\cancel{26}$ = 5 x 2 = 100, $\frac{8}{13}$ x 26 = 8 x 2 = 160

100 parrots , 160 pigeons.

Q.4: A man purchased a pair of shoes, shirts and a watch he paid Rs. 960 for them.If ratio among the prices of the three is 4 : 3 : 5 respectively then. Find the cost price of each.

Solution:

- $4 + 3 + 5 = 12$

  Amount to be purchased in 960

  $\frac{4}{\cancel{12}}{}^{80} \times \cancel{960} = 4 \times 960$, $\frac{3}{12} \times 960 = 3 \times 80 = 940$ (= 320)

  $\frac{5}{12} \times 960 = 5 \times 80 = 400$

  Shoes = 320 , shirts = 240, watch = 400 Answer

Q.5: **The ratio of the runs scored by Amir Sohail in three matches was 3 : 5 : 7. If the total runs scored by him in three matches are 750 then final his score in each match.**

Solution:

Ratio blw = 3 + 5 + 7 = 15

Total runs in three matches are = 750

$\frac{3}{\cancel{15}} \times \cancel{750}{}^{50} = 3 \times 50 = 150$, $\frac{5}{15} \times 750 = 5 \times 50 = 250$

$\frac{7}{15} \times 750 = 7 \times 50 = 350$,

Score of 1st match = 150, score of 3rd match = 350 score of 2nd match = 250 Answer.

Q.6: Sajid and Kamran invested Rs. 12.000 and Rs. 16500 respectively to start a business. After six months they gained a profit of Rs. 5600 in business.Final their start a business of Rs. 5600 in business.Final their start a business in partnership.

Solution

12,~~000~~, 16~~500~~

~~12~~ , ~~165~~

Ratio blw = 3 + 5 = 8

Gained a protit = 5600

3 , 5

$\frac{4}{8} \times \cancel{5600}{}^{700} = 4 \times 700 = 2800$, $\frac{4}{8} \times 5600 = 5 \times 5600 = 3500$

Sajid = 2800 , Kamran = 3500

Q: 7: Imran invested a capital of Rs. 25,800 and Sultan invested a capital of Rs.30,000. After a month there was loss of Rs. 930. Find their shoes in loss.

Solution:

Ratio blw = 3 + 3 = 6

Month loss = 930

$\frac{3}{6} \times \cancel{930}{}^{155} = 3 \times 155 = 465$, $\frac{3}{6} \times 930 = 3 \times 155 = 465$

Imran = 465

Sultan = 465 Answer

Q.8: Three friends Zafar meraj and Shahnaz in invested Rs.14000, Rs.9800 and Rs.7,000 respectively in a joined business.After a month

they gained a profit of Rs. 4,400.Final the share of each in the profit.

Solution:

2 + 2 + 7 = 11

Profit = 4, 400

$\frac{2}{11}$ x ~~4400~~ = 2 x 400 = 800, $\frac{2}{11}$ x ~~4400~~ = 2 x 400 = 800 $\frac{7}{11}$ x ~~4400~~ = 7 x 400 = 2800.

Zafar's share = Rs: 8,000 , Meraj's share = 800

Shahnaz's share = 2800 Answer.

Q.9: Three brothers Tariq, Dr.Irfan and Hunaid started a clinic.They invested Rs.35,0000,Rs 25,000 and Rs. 15,000 respectively. After a year they gained a profit of Rs. 42, 000 final the share of each in the profit it their younger brother's got Rs.1000 per month as a compounder.

Solution:

Ratio, blw = 3~~5000~~, 2~~5000~~, 1~~5000~~

5 + 5 + 5 = 15

$= \frac{5}{15}$ x 1000

$= \frac{\overset{100}{\cancel{5000}}}{\underset{3}{\cancel{15}}} = \frac{1000}{3}$

333. 33

333.3

3)1000 (

– 31

100

– 9

10

Exercise: 3.3

1) A man died leaving Rs. 60.000 in his heritage distributed his heritage among 4 sons, 3 doughters and a widow.Their shares are in the ratio of 8 : 3 : 1.How much will each got?

Solution:

Heritage = 60,000

$\frac{4}{3}$ x 60,000 = 20,000

Remaing amount = 60,000 – 20,000 = 40,000

2 + 3 + 1 = 12

$\frac{4}{3}$ x 40,000 = 60, 000, $\frac{3}{12}$ x 40,000 = 10, 000

$\frac{1}{12}$ x 40,000 = 3, 320

Each son got Rs, 10,000

Each doughter got Rs,000

Widow got Rs. 3,320 Answer

2) A man gave in his life $\frac{1}{6}$ of the property to his wife $\frac{3}{5}$ of the remaing property to his two sons, and the remaining to his four daughters if the total property is Rs. 76,800 than find each share.

Solution:

Wife Share = $\frac{1}{6}$ x 76800 = 12800

78600 – 12800 = 64000

The man gave $\frac{3}{5}$ of the remaining property to his two sons.

Son's share = $\frac{3}{5}$ x 64000 = 38400

Each son's Share = $\frac{38400}{2}$ = 19200

Remaing property after son's share

64000 – 38400 = 25600

$\frac{25600}{4}$ = 6400

Wife Rs : 12800

Each son Rs. 19200

Each daughter Rs. 6400 Answer

3) A women died leaving Rs. 24800 which was divided among his five son's four daughters and her husband if a son gets twice as much as a daughter gets and her husband gets $\frac{1}{8}$ of the whole property; then find the share of each.

Solution:

$\frac{1}{8}$ x 24000 = 3000

The total amount is 24000 and its divided among 5 sons, 4 daughter and the husband. We can write this as an equation $5(2\ x) + 4(x) + 3000 = 24000$

Solve the equation for x.

$10\ x + 4\ x + 3000 = 24000$

$14\ x = 24000 — 3000$

$14\ x = 21000$

$x = \frac{21000}{14}$

$x = 1500$

4) A person died leaving behind a widow. 6 sons and 4 doughters. His widow got $\frac{1}{8}$ of the property and each son got twice as much as a daughter got in the remaining property. What will be the share of each one out of the property of 200,000 rupees when a loan of Rs. 40000 is also due on him.

Solution:

200,000 – 40000 = 160, 000

The widow receives $\frac{1}{8}$ of this remaining

Property : 160, 000 x $\frac{1}{8}$ = 20,000

160,000 – 20,000 = 140, 000

Let's share each daughter's share is " x "

Each son's gets twice as much or " $2\ x$ ".

$6\ (2\ x) + 4\ (x) = 16\ x$

This total remaining is 140,000.

$16\ x = 140, 000$

Solving for x ,

$x = \frac{140,000}{16} = 8750$

$2\ x = 2$ x 8 t 50 = 1750

Widow Rs. 20,000

Each daughters Rs. 8,750

Each Son Rs. 17,500 Answer

5) The property worth of a man is Rs. 50,000. He gave Rs. 250 on the account of Zakat. The remaining propertuy was distributed among his wife, son and doughter.He gave the

remaining property to his son., wife and daughter in the ratio of $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{5}$. Find the share of each one.

Solution:

50,000 – 250 = 49700

$\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{5}$

2, 4, 5 = 20

Son: $\frac{1}{2} = \frac{10}{20}$, Daughter : $\frac{1}{5} = \frac{4}{20}$

Wife : $\frac{1}{4} = \frac{5}{20}$

The total ratio is 10 + 5 + 4 = 19

$\frac{10}{19}$ x 49750 = 26210.53

$\frac{5}{19}$ x 49750 = 13052.63

$\frac{4}{19}$ x 49750 = 10486.84

26210.53 + 13052.03 + 10486.84 = 49750

Son got Rs. 26184.20

Wife got Rs. 13092.10

Daughter got Rs. 10473.68 Answer.

6) A man died leaving a property of Rs. 100,000 and Rs. 10,00,000 in cash. According to his will the heritage was distributed among his brother, sister's and his mother. Find the share of each inheritor when brother's and

sister's share are $\frac{1}{6}$ = and remaing amount to his mother if $\frac{1}{5}$ of the property was given to Edhi Trust.

Solution:

1,00,000 + 100,0,000 = 11,00,000

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

$\frac{1}{3} + \frac{1}{3} = \frac{5}{15} + \frac{3}{15} = \frac{8}{15}$

$\frac{1}{6}$ x 11,00,000 = Rs. 1,83,333.33

$\frac{1}{6}$ + 11, 00,000 =1, 83,333.33

$\frac{1}{5}$ x 11,00,000 = 2,20,000

$\frac{7}{15}$ x 11, 00, 000 = 513, 333.33

1,83,333.33 + 1.,83,333.33 + 2,20.000 + 513,333.33 = 88,219, 999

Brother receives Rs. 1.83,333,33

Sister's receives Rs. 1,83, 333,33

Mother' receives Rs. 2,20,000

Edhi trust reveives Rs. 513,333,33 Answer.

Exercise: 3.4

1) Find which of the following expression are in proportion:

1) 4 : 3 = 8 : 6

Solution:

4 : 3 : : 8 : 6

4 x 6 = 24

Extrem product

3 x 8 = 24

Mean product

⇒ Proportion

Answer

2) 5 : 4 = 4 : 5

Solution:

5 : 4 : : 4 : 5

5 x 5 = 25

Extrems product

4 x 4 = 16

Mean product

⇒ Proportion

Answer

3) 7 : 6 : : 4 : 12

Solution:

7 : 6 : : 4 : 12

7 x 12 = 84

Extrem product

6 x 4 = 24

Mean product

⇒ Proportion

Answer

4) 10 : 12 : : 5 : 6

Solution:

10 : 12 : : 5 : 6

10 x 6 = 60

Extrem product

12 x 5 = 60

Mean product

⇒ Proportion

Answer

5) 1 : 8 : : 3 : 24

Solution:

1 : 8 : : 3 : 24

1 x 24 = 24

Extrem product

8 x 3 = 24

Mean product

⇒ Proportion

Answer

6) 3 : 5 : : 12 : 20

Solution:

3 : 5 : : 12 : 20

3 x 20 = 60

Extrem product

5 x 12 = 60

Mean product

⇒ Proportion

Answer

7) 6 : 12 : : 7 : 7

Solution:

6 : 12 : : 7 : 7

6 x 7 = 42

Extrem product

12 x 7 = 84

Mean product

⇒ Not Proportion

Answer

8) 4 : 12 : : 3 : 9

Solution:

4 : 12 : : 3 : 9

4 x 9 = 36

Extrem product

12 x 3 = 36

Mean product

⇒ Proportion

Answer

9) 18 : 3 : : 6 : 1

Solution:

18 : 3 : : 6 : 1

18 x 1 = 18

Extrem product

3 x 6 = 18

Mean product

⇒ Proportion

Answer

10) 2 : 19 : : 3 : 14

Solution:

2 : 19 : : 3 : 14

2 x 14 = 28

Extrem product

19 x 3 = 57

Mean product

⇒ Not Proportion

Answer

Members of

2) Find the fourth proportion in the following expression:

1) 2 : 6 : : 3 : a

Solution:

2 x a = 2 a ,6 x 3 = 18

Extrem product Mean Product

2 a = 18

$\frac{2a}{2} = \frac{18}{2}$, a = 9

2 : 6 : : 3 : 9

2 x 9 = 18 , 6 x 3 = 18

Extem product Mean product

Proportion Answer.

2) 7 : x : : 21 : 9

Solution:

7 : x : : 21 : 9

7 x 9 = 63 , x x 21 = 21 x

Extrem product Mean product

63 = 21 x

$\frac{\cancel{63}}{\cancel{63}} = \frac{\overset{1}{\cancel{21}}}{\cancel{63}} x$ = 3 = x

7 : 3 : : 21 : 9

7 x 9 = 63 , 3 x 21 = 63

Extrem product Mean product

⇒ Proportion Answer

3) 6 : 9 : : a : 6

Solution:

6 : 9 : : a : 6

6 x 6 36 , 9 x a = 9 a

Extrem product Mean product

36 = 9 a

$\frac{\cancel{36}}{\cancel{36}} = \frac{\overset{1}{\cancel{9}a}}{\cancel{36}}$,a = 4

4

6 : 9 : : 4 :6

6 x 6 = 36 , 9 x 4 = 36

Extreme product Mean product

⇒ Proportion Answer.

4) 13 : 4 : : 26 : y

Solution:

13 : 4 : : 26 : y

13 x y = 13y , 4 x 26 = 104

Extrem product Mean Product

13y = 104

$\frac{\overset{1}{\cancel{13}y}}{\cancel{104}} = \frac{\cancel{104}}{\cancel{104}}$, y = 8

8

13 x 8 = 104 , 4 x 26 = 104

Extrem product Mean product

⇒ Proportion Answer.

3) Find the value of a, b, x and y in the following expression.

1) 3, 5, 12

Solution:

3 : 5 : : 12 : a

$\frac{\cancel{3}\text{ x } a}{\cancel{3}} = \frac{\cancel{5}\text{ x } \overset{4}{\cancel{12}}}{\cancel{3}}$ $\frac{\cancel{5}\text{x } 12}{\cancel{5}} = \frac{3 \text{ x } a}{5}$

1

a = 5 x 4

a = 20 Answer

2) 4, 6, 8

Solution:

4 : 6 : : 8 : b

$\frac{4}{6} = \frac{8}{b}$ = 4 x b = 6 x 8

$\frac{4 \times 6}{4} = \frac{6 \times \overset{1}{4}}{\underset{1}{4}}$

b = 6 x 1

6 = 6 Answer.

3) 7, 8, 14

Solution:

7 : 8 : : 14 : x

$\frac{7}{8} = \frac{14}{x}$ = 7 x x = 8 x 14

$\frac{7 \times x}{7} = \frac{8 \times \overset{2}{14}}{\underset{1}{7}}$

x = 8 x 2

x = 16 Answer.

3) 7, 8, 14

Solution:

7 : 8 : : 14 : x

$\frac{7}{8} = \frac{14}{x}$ = 7 x x = 8 x 14

$\frac{7 \times x}{7} = \frac{8 \times \overset{2}{14}}{7}$

x = 8 x 2

x = 16 Answer.

4) 6, 5, 12

Solution:

6 : 5 : : 12 : y

6 x y = 5 x 12

$\frac{6 \times y}{6} = \frac{5 \times \overset{2}{12}}{\underset{1}{6}}$

y = 5 x 2

y = 10 Answer.

5) 9, 8, 7

Solution:

9 : 8 : : 7 : a

$\frac{9}{8} = \frac{9}{a}$ =

9 x a = 8 x a

$\frac{9 \times a}{9} = \frac{8 \times \overset{1}{9}}{\underset{1}{9}}$

a = 8 x 1

a = 1 Answer.

6) 5, 8, 10

Solution:

5 : 8 : : 10 : b

$\frac{5}{8} = \frac{10}{b}$

5 x b = 8 x 10

$\frac{5 \times b}{5} = \frac{8 \times 10^{2}}{5_{1}}$

b = 8 x 2

b = 16 Answer.

7) 3, 4, 5

Solution:

3 : 4 : : 5 : x

$\frac{3}{4} = \frac{5}{x}$ =

3 x x = 4 x 14

$\frac{3 \times x}{3} = \frac{4 \times 5}{3}$

$x = \frac{20}{3}$

$x = 6\frac{2}{3}$ Answer.

8) 5, 7, 4

Solution:

5 : 7 : : 4 : y

$\frac{5}{7} = \frac{4}{y}$ =

5 x y = 7 x 4

$\frac{5 \times y}{5} = \frac{7 \times 4}{5}$

Answer.

Exercise 3.5

1) A tailor stiches 4 frocks in 12 days. How many such frocks will be stiched in 30 days?

Solution:

$\frac{4\ frocks}{12\ days} = \frac{x\ frocks}{30\ days}$

12 x = 4 x 30

12 x = 120

$x = \frac{120^{10}}{12_{1}} = 10$

Tailor will stich 10 frock in 30 days. Answer.

2) A bus covers a distance of 90 km in 6h. how much distance will in cover in 9h?

Solution:

$\frac{90\ \text{km}}{6\text{h}} = \frac{x\ \text{km}}{9\text{h}}$

6 x = 90 x 9

6 x = 810

$x = \frac{810}{6} = 135$

The bus will cover 135 kilometers in 9 hours. Answer.

3) The price of 12 meter of cloth is Rs. 144. How much can be bought in Rs. 204?

Solution:

$\frac{12\ meters}{144} = \frac{x\ \text{meters}}{204}$

144 x = 12 x 204

$144\ x = 2448$

$x = \frac{2448}{144} = 17$

17 meters of cloth can be bought for Rs. 204. Answer.

4) The price of 3 kilogram of meat is Rs. 135. What wil be price of 7 kilogram of meat?

Solution:

$\frac{3\ kg}{135\ Rs} = \frac{7\ kg}{x\ Rs}$

$3x = 135 \text{ x } 7$

$3x = 945$

$x = \frac{945}{3}$

$x = 315$

The price of 7 kg of meat will be Rs. 315.

5) A motorcycle travels 200 kilometers in 4 liters of petrol. How many kilometers can it go in 3 liters of petrol?

Solution:

$\frac{200\ km}{4\ liters} = \frac{x\ km}{3\ liters}$

$4\ x = 200 \text{ x } 3$

$4\ x = 600$

$x = \frac{600}{4} = 150$

The motorcycle can go 150 kilometer in 3 liters of petrol.

6) in a map the distance of 24 kilometers is represented by 3 centimeters find how many

kilometers will be represented by 7 centimeters long time segment?

Solution:

$\frac{24km}{3cm} = \frac{x\ km}{7cm}$

$3x = 24 \text{ x } 7$

$3x = 168$

$x = \frac{185}{3} = 56$ Answer.

7) On purchase of book worth Rs. 255 from the shop a rebate of Rs. 25 is paid. What is the rebate of purchased of books worth Rs. 540?

Solution:

$\frac{25}{255\ Rs} = \frac{x\ Rs}{540 Rs}$

$255\ x = 25 \text{ x } 540$

$255\ x = 13500$

$x = \frac{13500}{255} = 52.94$ Answer

8) The distance blw Karachi and Hyderabad is 105 km. A bus runs 45 kilometers per hours what time will it take to cover this distance?

Solution:

Time $= \frac{Distance}{Speed} = \frac{105\ km}{45\ km/h}$. 2.33 hours.

0.33 x 60 = 20 minutes

So it take will the bus approximately 2 hours and 20 minutes. Answer

9) The cost of 1 dozen pens is Rs. 192. Find the cost of 20 such pens.

Solution:

$$\frac{192\ Rs}{12\ pens} = \frac{x\ Rs}{20\ pens}$$

$12\ x = 192$ x 20

$12\ x = 3840$

$x = \frac{3840}{12}$

Rs: 320

The cost of 20 pens is Rs. 320 Answer

10) The cost of 10 kilometers of sugar is Rs. 145. Find the cost of 25 kilograms of sugar.

Solution:

$$\frac{145\ Rs}{10\ kg} = \frac{x\ Rs}{25\ kg}$$

$10\ x = 145$ x 25

$10\ x = 3625$

$x = \frac{3625}{10} = 362.5$

The cost of 25 kilograms of sugar is Rs. 362.5 Answer.

Chapter 4

PERCENTAGE

Exercise 4.1

1) A boy got 80 marks out of 100 in a test in mathematics. What percentage of marks did he obtain?

Solution:

Percentage = $\frac{Marks\ obtained}{Total\ Marks}$ x 100

Percentage = $\frac{80}{100}$ x 100 = 80%

The boy obtained 80% marks. Answer.

2) In a school of 100 students 17 student were absent.What percentage of student were present and what percentage of students were absent?

Solution:

Percent = Total – Absent = 100 – 17 = 83

Percentage = $\frac{83}{100}$ x 100 = 83%

Present

Percentage = $\frac{17}{100}$ x 100 = 17%

Absent

83% of students were present and 17% were absent. Answer.

3) Aslam got 30 marks out of 50 in his test of English. What percent marks did he obtain?

Solution:

Percentage = $\frac{30}{50}$ x 100 = 60%

Aslam obtained 60% marks. Answer.

4) In a school there are 51 boys and 49 girls. Find the the percentage of boys and girls in the school.

Solution:

Percentage of boys:

Percentage = $\frac{51}{100}$ x 100 = 51%

Percentage of girls.

Percentage = $\frac{49}{100}$ x 100 = 49%

There are 51% boys and 49% girls in the school. Answer.

5) What percentage of a rupee is. 1 paisa, 5 paisa, 10 paisa, 25 paisa.

Solution:

1 paisa : $\frac{1}{100}$ x 100 = 1%

5 paisa : $\frac{5}{100}$ x 100 = 5%

10 paisa : $\frac{10}{100}$ x 100 = 10%

25 paisa : $\frac{25}{100}$ x 100 = 25%

50 paisa : $\frac{50}{100}$ x 100 = 50% Answer.

Exercise 4.2

1) Change the following into a common fraction.

1) 25%

Solution:

$\Rightarrow$ 25% = $\frac{25}{100} = \frac{1}{4}$ Answer.

2) 15%

Solution:

$\Rightarrow$ 15% = $\frac{15}{100} = \frac{3}{20}$ Answer.

3) 40%

Solution:

$\Rightarrow$ 40% = $\frac{40}{100} = \frac{2}{5}$ Answer.

4) 45%

Solution:

$\Rightarrow$ 45% = $\frac{45}{100} = \frac{9}{20}$ Answer.

5) 2%

Solution:

$\Rightarrow$ 2% = $\frac{2}{100} = \frac{1}{50}$ Answer.

6) $12\frac{1}{2}$ %

Solution:

$\Rightarrow$ = $\frac{25}{100} = \frac{1}{8}$ Answer

7) 100%

Solution:

$\Rightarrow$ 100% = $\frac{100}{100} = 1$ Answer.

7) $33\frac{1}{2}$ %

Solution:

$\Rightarrow$ $33\frac{1}{2}\% = \frac{67}{200}$ Answer.

B) Change the following into decimal fraction:

1) 12%

Solution:

$\Rightarrow$ $12\% = \frac{12}{100} = 0.12$ Answer.

2) 44%

Solution:

$\Rightarrow$ $44\% = \frac{44}{100} = 0.44$ Answer.

3) 70%

Solution:

$\Rightarrow$ $70\% = \frac{70}{100} = 0.70$ or 0.7 Answer.

4) 100%

Solution:

$\Rightarrow$ $100\% = \frac{100}{100} = 0.1.00$ or 1 Answer.

5) 140%

Solution:

$\Rightarrow$ $140\% = \frac{140}{100} = 1.40$ or 1.4 Answer.

6) 33%

Solution:

$\Rightarrow$ $33\% = \frac{33}{100} = 0.33$ Answer.

7) 66%

Solution:

$\Rightarrow$ $66\ \% = \frac{66}{100} = 0.66$ Answer.

8) 1.3 %

Solution:

$\Rightarrow$ $1.3\ \% = \frac{1.3}{100} = 0.013$ Answer.

9) 7 %

Solution:

$\Rightarrow$ $7\ \% = \frac{7}{100} = 0.07$ Answer.

10) 65 %

Solution:

$\Rightarrow$ $65\% = \frac{65}{100} = 0.65$ Answer.

Exercise: 4.3

1) . 35

Solution:

$\Rightarrow$ 35 %

Answer

2) 3 .25

Solution:

$\Rightarrow$ 3.25 %

Answer

3) 40. 5

Solution:

⇒ 40.50 %

Answer

4) 32

Solution:

⇒ 32 %

Answer

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

Solution:

⇒ 50 %

Answer

6) $\frac{3}{4}$

Solution:

⇒ 75 %

Answer

7) $12\frac{1}{2}$

Solution:

⇒ 12.50 %

Answer

8) $\frac{8}{75}$

Solution:

⇒ 10.66 %

Answer

9) $\frac{17}{40}$

Solution:

⇒ 94.25 %

Answer

10) $\frac{13}{50}$

Solution:

⇒ 26 %

Answer

11) $3\frac{7}{25}$

Solution:

⇒ 328 %

Answer

12) $6\frac{3}{5}$

Solution:

⇒ 66 %

Answer

13) A man gives 0.25 of his property in charity find. What percentage of property he gave in charity?

Solution:

⇒ 25% Answer.

14) Ahmed spends 0.32 of his salary in house sent. Find what percentage of his salary he spends as house rent?

Solution:

⇒ 32 % Answer.

15) Kanwal has read ¼ of her book. Find the percentage of the portion of book read.

Solution:

⇒ 6.25 % Answer.

16) Ishrat saves 1/8 of her salary each month. Find what percentage of saving.

Solution:

⇒ $12\frac{1}{2}$ % Answer.

17) Aslam obtained 65% marks in the enamination. Find what fraction of total marks he obtained.

Solution:

⇒ 13 / 20 % Answer.

18) Mashkoor spend 50% of his income on food month. What fraction of his income did he spend on good.

Solution:

⇒ $\frac{1}{2}$ Answer.

Exercise: 4.4

1) Tamoor secured the following mark in the hs amount examination. Calculate the percentage in each subject and final in which subject.

Subject	Urdu	Maths	Science	S.S	Islamiat	Sindhi
Max Marks	100	75	50	25	60	40
Mark obtained	70	54	37	21	48	24

⇒ **Solution:**

Percentage = $\frac{Marks\ obtained}{maximum\ marks}$ x 100

Lets calculate the percentage for each subject:

- Urdu : $\frac{70}{100}$ x 100 = 70%
- Math's : $\frac{54}{50}$ x 100 = 72%
- Science : $\frac{37}{50}$ x 100 = 74%
- Islamiat : $\frac{48}{60}$ x 100 = 80%

Sindhi: $\frac{24}{40}$ x 100 = 60% Answer.

Tamour got the highest percentage in social study: {84%}.

2) In a class of 60 students 6 were absent. Final what percentage of boys were absent. What percent of boys were percent?

⇒ **Solution:**

60 – 6 = 54

$\frac{\cancel{54}^{9}}{\cancel{60}_{\cancel{10}_{1}}}$ x $1\cancel{00}^{10}$

100% – 90% = 10% Answer.

3) 45 out of 60 boys of class VI of 60 pupils and the rest are girls what percentage of class are girls?

Solution:

60 – 45 = 15

$\frac{15}{60}$ x 100 = 25% Answer.

4) There are 48 boys in the class of 60 pupils and rest are girls what percentage of class are girls.

Solution:

⇒ 60 – 48 = 12

$\frac{20}{60}$ x 100 = 20%

20 % of the class are girls. Answer.

5) The basis pay of a men is Rs. 1200 p.m. his pay is increased by 10% due to indenation.What is his new pay?

Solution:

⇒ $1200 \times \frac{10}{100} = 120$

$1200 + 120 = 1320$

His new pay is Rs = 1320 Answer.

6) I purchased a motorcycle for Rs.7,000/ - and sold it at a profit of 5% what will be the total gain?

Solution:

⇒ Find the profit: The profit is 5% of Rs. 7000.

$0.05 \times 7000 = 350$

Total gain: is Rs. 350 Answer.

7) A men has an annual income of Rs. 4,0000. He spends 30% on his house, 10% on education of children, 5% on insurance, 2% on conveyance, 25% on food. He pays 2 ½ % Zakat and save the rest. Find the actual amount of money he saves, spends, at pays on the various items given.

Solution:

⇒ Total income Rs. 40,0000

Calculate expenditures:

House :	0.30 x 40,000 = 12000
Education :	0.10 x 40,000 = 4000
Insurance:	0.05 x 40,000 = 2000
Conveyonce:	0.02 x 40,000 = 800
Food :	0.25 x 40,000 = 10000
Zakat:	0.025 x 40,000 = 1000

Total expenditures:

12000+4000+2000+800+10000+1000 =29800

Saving : 40,000 – 29800 = 10200 Answer.

8) Find the value of:

1) 10% of 2500 = 250 **2)** 40% of 40 = 16

3) 15% of 800 = 120 **4)** 30% of 150 = 45

5) 60 = 33 $^1/_3$ % of = 180 **6)** 80 = 25% of 320

a)

9) What amount has its 40% = 16

Solution:

⇒ $0.40\ x = 16$

Divide both sides

$x = \frac{16}{0.40} = 40$

The amount of 40. Answer.

b) What amount has its 25% = 30

Solution:

⇒ $0.25\ x = 30$

Divide both sides

$x = \frac{30}{0.25} = 120$ Answer.

c) What amount has its 60% = 180

Solution:

⇒ $0.60\ x = 180$

Divide both sides

$x = \frac{180}{0.60} = 300$ Answer.

10) 30% of amount its Rs. 45 find the amount?

Solution:

$\Rightarrow$ $0.30\ x = 45$

Divide both sides

$x = \frac{45}{0.30} = 150$ Answer.

11) out of 500 candidates 85% were declared successful. Find the number of candidates who failed.

Solution:

$\Rightarrow$ 500 x 0.85 = 425

500 – 425 = 75

75 candidates failed. Answer.

12) An aircraft flew 10% faster than the speed of sound which is 1200 km/ hr. What was the speed of aircraft?

Solution:

$\Rightarrow$ 1200+(0.10 x 1200) =1200 + 120=1320 km/hr

The speed of the aircraft was 1320 km/hr. Answer.

13) A suit is marked at Rs. 600 at the time of sale 10% is deducted from the price. At what price is it sold?

Solution:

The selling price is : 600 = 540

The suit is sold at Rs 540 Answer

14) A shopkeeper allow 12% discount on his good sold. Calculate the discount on an article market at Rs. 150.

Solution:

$\Rightarrow$ 150 x 0.12 = (81.

The discount on the article is Rs: 18

Answer

Exercise: 4.5

1) At the end the year a men has Rs. 1600 cash. Find the amount of Zakat that he will have to pay.

Solution:

$\Rightarrow$ Zakat = 0.025 x 1600 = Rs. 40

The man will have to pay Rs. 40 as Zakat Answer.

2) Mashkoor has good worth Rs. 16000 for the whole year. Find how much zakat will have pay?

Solution:

$\Rightarrow$ Zakat = 0.025 x 16000 = Rs. 400

Mashkoor will pay Rs. 400 as Zakat.

3) Ishrat kept 40 Dg.Of gold for the whole year. What amount of zakat should she pay it the rate of gold is Rs. 2000 per gram?

Solution:

⇒ 40 Dg = 40 x 0.1g = 4g
Total value: 4g x Rs. 2000/g = Rs = 8000.
Zakat = 0.025 x 8000 = Rs = 200
Ishrat should pay Rs. 200 as Zakat. Answer

4) Arif paid Rs. 120 as Zakat. How much money did he have for the whole year?

Solution:

⇒ $0.025\ x = 120$
$x = \frac{120}{0.025}$ = Rs. 4800
Arif has Rs. 4800 for the whole year.
Answer.

5) A person paid Rs. 324.50 as Zakat. What amount of money did he have for the whole year?

Solution:

⇒ $0.025\ x = 324.50$
$x = \frac{324.50}{0.025}$ = Rs. 12980
The person had Rs. 12980 for the whole year.

6) Uzma had gold and silver worth Rs. 600 beside some cash.If she paid Rs. 200 as Zakat, what was her cash?

Solution:

$0.025\ (\ 600 + x\ ) = 200$
$600 + x = \frac{200}{0.025} = 8000$
$x = 8000 - 600$ = Rs. 7400
Uzma's cash was Rs. 7400 Answer

Exercise: 4.6

1) A man has to pay income for on his net annual income amounting to Rs. 11500. If the rate of income for is 2% per annum , find the income for to payable by him?

Solution:

Income tax : 0.02 x 115200 = 230
The income tax payable by him is Rs. 230.
Answer.

2) Annual net income of Haneef is Rs. 60.000. calculate the income tax payable at the rate of 2% per annum?

Solution:

⇒ Income tax: 0.02 x 60.000 = 1200
The income tax payable by Haneef is Rs. 1200. Answer.

3) Annual net income tax Anwar is Rs. 24,000 Calculate the income tax payable at the rate of 20y. per annum.

Solution:

⇒ Income tax: 0.020 x 24.000 = 4000
The income tax payable by Anwar is Rs. 4800. Answer.

4) Abdul Bhai paid land Ravenue of Rs. 500.If the rate of land revenue 2 ½ of annual product. Find the annul product of Abdul Bhai.

Solution:

⇒ 0.025 x = 500
Divide both sides
$x = \frac{500}{0.025} = 20{,}000$ Answer.

5) Salman pays an annual tan of Rs. 500 is his property in Golden Twon. What is his property worth, if the rate of tan is 5% per annum?

Solution:

$0.05\ x = 500$
Divide both sides.
$x = \frac{500}{0.05} = 10{,}000$ Answer.

6) A trader paid Rs. 500 as import duty. If the duty was changed at the rate of 200% of the cost price.Calculat the cost of the article imported.

Solution:

⇒ 2y = 500
Divide both sides
$y = \frac{500}{2} = 250$ Answer.

7) A trader paid Rs. 250 as import duty on the article as costing Rs. 740. Find at what rate percent was the duty charged.

Solution:

⇒ Percentage = $\frac{250}{750}$ x 100 = $\frac{1}{3}$ x 100 = 33.33%
The duty was charged at approximately. 33.33 % Answer.

8) Find the rate of tan per hundred if a men pays tan of Rs.750.On a property worth Rs. 15,000?

Solution:

⇒ Rate per hundred = $\frac{Tan\ paid}{property\ value}$ x 100
Rate per hundred = $\frac{750}{15{,}000}$ x 100 = 0.05
0.05 x 100 = 5
The rate of tan per hundred is 5 Answer.

Exercise: 4.7

1) Find the interest on Rs: 1000 at 9%.

Solution:

⇒ The formula of simple interest is:

Simple interest: $= \frac{Principle \times Rate \times time}{100}$

Simple interest $= \frac{1000 \times 9 \times 1}{100} = 90$ Answer.

2) Calculate the interest for one year on Rs. 750 at the rate of 10% per annum.

Solution:

$\Rightarrow$ Simple interest $= \frac{750 \times 10 \times 1}{100} = 75$ Answer.

The interest of one year on Rs. 750 at 10% is Rs. 75 Answer.

3) Abdul borrowed Rs. 1000, from a bank at 8 ½ % find the amount of money he will have to pay at the end of year.

Solution:

$\Rightarrow$ Simple interest $= \frac{1000 \times 8.5 \times 1}{100} = 85$ 1000 + 85 + = 1085

Abdul will have to pay Rs. 1085 at the end of year.

4) Aslam deposited Rs. 500 in a bank which gaves 2 ½ % interest per annum. Find his balance with bank ofter one year.

Solution:

$\Rightarrow$ Principle = 500, Rate = $\frac{500 \times 2.5 \times 1}{100} = 12.5$

500 + 12.5 = 512.5

Aslam's balance with the bank ofter one year will be Rs. 512.5. Answer.

5) Find the amount at the end of one year when principle is Rs. 1900 and rate of interest is 12 ½ % per annum and time 3 year.

Solution:

$\Rightarrow$ Principle = 1900, Rate = 12.5%, time=1 year.

Simple interest $= \frac{1900 \times 12.5 \times 1}{100} = 237.5$

1900 + 237.5 = 2137.5 Answer.

6) Find simple interest an Principal Rs. 8,000 rate 12% per annum for 2 year.

Solution:

$\Rightarrow$ Principal = 8,000, Rate = 12 %, time = 2 year

Simple interest $= \frac{8000 \times 12 \times 2}{100} = 1920$

The simple interest is Rs. 1920 Answer.

7) Principal Rs. 10,000 rate $2^1/_2$ % per annum and time 3 years.

Solution:

$\Rightarrow$ Principal = 10,000, rate = 2.5%, time = 3 year.

Simple interest $= \frac{10000 \times 2.5 \times 3}{100} = 750$

The simple interest is Rs. 750 Answer

8) A borrowed Rs. 6000 from a bank at 9% per annum. Find what interest he will have to pay for one year.

Solution:

Principal = 6000, rate = 9%, time = 1 year

Simple interest = $\frac{6000 \times 9 \times 1}{100} = 540$

A will have to pay Rs. 540 in interest 1 year. Answer.

9) Allah Bux borrowed Rs.500 from a bank at the rate of 8% per annum. Find how much interest he will have to pay to the bank at the end of the year.

Solution:

Simple interest = $\frac{500 \times 8 \times 1}{100} = 40$ Answer.

10) Nusrat borrowed Rs. 1500 from the bank for 3 year. How much interest will he pay at 60% per annum.

Solution:

⇒ Simple interest = $\frac{1500 \times 6 \times 3}{100} = 270$

Nusrat will pay Rs. 270 as interest Answer.

11) Find the amount when the principal is Rs.500 rate of interest is 7 ½ and the time 13 2 years.

Solution:

⇒ Simple interest = $\frac{500 \times 7.5 \times 2}{100} = 75$

500 + 75 = 575 Answer.

Exercise: 4.8

1) A cloth merchant purchased 200 meters of cloths for Rs. 1000 and sold it at the rate of Rs. 6 per meter. Find his loss or gain.

Solution:

⇒ { C. P } Rs: 1000

{ S. P } = 20 meter, Rs. 6 meter = Rs: 1200

Gain: 1200 – 1000 = Rs: 200

The cloth merchant gained Rs: 200 Answer

2) Kiran bought 50 pencil at the rate of Rs. 12 per dozen and she sold them at Rs. 2.50 each, find the loss and gain.

Solution:

⇒ { C. P } = 50 pencils / 12 pencils / dozen Rs 12/ dozen = Rs: 50

{ S.P }= 50 pencils Rs. 2.50/ pencils = Rs. 125

Gain: 125 – 50 = 75

Kiran gained Rs. 75 Answer.

3) A fruit merchant bought two boxes of mangoes containing 19kgs. Each for Rs 380/ and sold them at the rate of Rs. 12 per kg. find the loss or gain.

Solution:

⇒ { C. P } = Rs: 380

{ S. P } = 19kgs Rs. 12/kg = Rs: 228

Gain: 380 – 228 = 152

The fruit merchant incurred a loss of Rs. 152 Answer.

4) A baker purchased 10 dozen eggs at the rate of Rs. 6.50 per dozen. Two dozen eggs were broken. He sold the remaining eggs at the rate Rs. 7.00 per dozen. Find the gain or loss

Solution:

⇒ { C. P }= 10 dozen Rs. 6.50/ dozen = Rs.65
{ S. P } = 10 dozen Rs. 7.00 / dozen = Rs. 56
Gain = 65 – 56 = 9
The baker incurred a loss of Rs 9 Answer.

5) A radio was purchase for Rs. 500 and sold for Rs. 450 find the loss percent.

Solution:

⇒ { C. P } = Rs: 500
{ S. P } Rs. 450
Gain: 500 – 450 = 50
$\frac{50 \times 500}{100}$ = 10%
There was a 10% loss Answer

Exercise: 4.9

1) A house was bought for Rs. 45000 and was sold at the gain of 3%. Find its seling price.

Solution:

⇒ Gain = 3 % of Rs: 45000 = 0.03 x 45000 = 1350 45000 + 1350 = 46350 Answer.

2) C.P of a motorcycle is Rs. 8000. If it is sold at a loss of 5% find the total loss and its selling price.

Solution:

⇒ Loss 5% of Rs = 8000 – 0.05 x 8000 = 400
800 – 400 = 7600 Answer.

3) 10 goats were bought for Rs. 4000 by a shepherd. Two of them died. Now the shepherd wants 25% gain. Find selling price.

Solution:

$\frac{4000}{10}$ = 400, 0.025 x 400 = 100
400 + 100 = 500 Answer

4) A man purchased two horses at Rs. 1200 each. He sold one horse at 5% gain and the other horse for Rs. 1100. Find (i) S.P of the first horse (ii) Total loss or gain.

Solution:

⇒ Gain = 5% of Rs. 1200 = 0.05 x 1200 = 60
First horse = 1200 + 60 = 1260
Two horse = 1200 + 1200 = 2400
1260 + 1100 = 2360
2400 – 2360 = 40 Answer.

5) Find selling price in each on the case.

i) C.P = Rs. 1000, gain 2 ½ %

Solve:

⇒ Gain = 2.5% of Rs. 1000 = 0.025 x 1000 = 25
S.P = 1000 + 25 = 1025 Ans

ii) C.P = Rs. 2500 gain 20%

Solve:

⇒ Gain = 20% of Rs. 2500 = 0.20 x 2500 = 500

S. P = 2500 + 500 = 3000 Ans

iii) C.P = Rs. 689, gain 30%

Solve:

⇒ Gain = 30% of Rs. 689 = 0.30 x 689 = 206.7
S.P = 689 + 206.7 = 895.7 Ans

iv) C.P = Rs: 755, loss 12.5%

Solve

⇒ loss = 12.5% of Rs. 735 = 0.125 x 735 = 91878
S.P = 735 – 91.875 = 634.125. Ans
The selling Prices are Rs. 1025, Rs. 3000 Rs 895.7 and Rs. 643.125 respectively.

Exercise 4.10

1) By selling a book for Rs. 500, there is gain of 25%. Find the cost price of the book?

Solution:

⇒ 1.25 x = 500
$x = \frac{500}{1.25} = 400$
The cost price of book is 400. Answer

2) By selling a house for Rs. 49000 the owner suffers a loss of 2% find how should he sell it to make a gain of 2%?

Solution:

⇒ 0.98y = 49000
$y = \frac{49000}{0.98} = 50000$

The cost price of house is Rs. 50000. To male a 2% gain, the selling price should be 1.02 % of the cost price.
1.02% x 50,000 = 51,000
The house should be sold for Rs. 51,000 to make a 2% gain. Answer.

3) By selling a house for Rs. 51000 the house owner gains 2%. Find the cost price?

Solution:

⇒ 1.02 z = 51000
$Z = \frac{51000}{1.02} = 50000$
The cost price of the house is Rs. 50,000
Answer.

4) A cloth merchant sold 40m of latha for Rs. 200 and gained 25%. Find the C.P of latha per meter.

Solution:

⇒ 1.25w = 200
$W = \frac{200}{1.25} = 160$
$\frac{160}{40} = 4$
The cost price of latha per meter is Rs.4 Answer.

5) By selling a pen for Rs. 16 there is loss of 20%. Find the cost price?

Solution:

⇒ 0.8 w = 16
$W = \frac{16}{0.8} = 20$ Answer.

Chapter 5

AVERAGE

Exercise: 5.1

1) Find the average of the following numbers.

i) 44, 41, 43, 45,42

Solution:

⇒ Sum the numbers:44+41 + 43 + 45 + 42 = 215

$\frac{215}{5}$ = 43 Answer

ii) 23, 33 ,23 ,21 ,29 ,27 ,35 ,31

23 + 33 + 23 + 21 + 29 + 27 + 35 + 31

$\frac{224}{8}$ = 28 Answer

iii) 11, 9, 7, 6, 10, 17

Solution:

⇒ 11 + 9 + 7 + 6 + 10 + 17 + = 60

$\frac{60}{6}$ = 10 Answer

iv) 10, 5, 3, 5, 2

Solution:

⇒ 10 + 5 + 3 + 5 + 2 = 25

$\frac{25}{5}$ = 5 Answer

v) 105, 85, 35, 45

Solution:

⇒ 105 + 85 + 35 + 45 = 275

$\frac{270}{4}$ = 67.5 Answer

2) In a test of mathematics, ten students secured 9, 14, 12, 18, 16, 24, 22, 18,15 and 22 respectively. Find the average number of marks secured by each student.

Solution:

⇒ 9 + 14 + 12 + 18 + 16 , 24, 22, 18, 15, + 22 = 160

$\frac{160}{10}$ = 16 Answer

3) The attendance students in a class of a certain school. Monday 46, Tuesday 37, Wednesday 33, Thursday 33, Friday 32, Saturday 41. Find the everage attendance.

Solution:

⇒ 46+ 37 + 33 + 33 + 32 ,41, = 222

$\frac{222}{6}$ = 37 Answer

4) Munawar made the following runs in 5 cricket matches.110, 89, 209, 45, 175,. Find his average score.

Solution:

⇒ 110 + 89 + 209 + 45 + 175 = 628

$\frac{628}{5}$ = 125.6 Answer

5) Meer find out the six days temperature of sukkur in the last week of October. 20°C, 25°C, 23°C, 21°C, 22°C, 24°C. find the average temperature of six days.

Solution:

⇒ 20 + 25 + 23 + 21 + 22 + 24 = 135°C

$\frac{135}{6}$ = 22.5°C Answer

6) Daily expenses on a family on a week.

Day	Mon	Tues	Wed	Thu	Fri	Sat
Expense	109	102	105	106	107	108

Solution:

⇒ 109 + 102 + 105 +106 +107 + 108 = 637

$\frac{637}{6}$ = 106.166 Answer

Exercise: 5.2

1) Find the weighted average according to the following table.

1)

x	1	4	2	3
w	14	17	13	22

Solution:

Weight { w }	Price { x }	W x x
19	1	19 x 1 = 19
17	4	17 x 4 = 68
19	2	13 x 2 = 26
22	3	22 x 3 = 66
∑ w = 71		∑ w x = 179

$\frac{179}{17}$ = 2.521 Answer

2)

x	2	4	5	6	8
w	5	4	6	8	10

Solution:

Weight { w }	Price { x }	W x x
5	2	5 x 2 = 10
4	4	4 x 4 = 16
6	5	6 x 5 = 30
8	6	8 x 6 = 48
10	8	∑ w x = 184
∑ w = 33		

$\frac{184}{33}$ = 5.57 Answer

3)

x	8	11	9	5	12
w	30	21	9.5	1.25	12.5

Solution:

Weight { w }	Price { x }	W x x
30	8	30 x 8 = 240
21	11	21 x 11 = 231
9.5	9	9.5 x 9 = 85.5
1.25	5	1.25 x 5 = 6.25
12.5	12	∑ w x = 712.75
∑ w = 74.25		

$\frac{712.75}{74.25}$ = 9.58 or 9 Answer

4)

x	2	2	4	5	2
w	2.2	2.1	2	1.9	1.8

Weight { w }	Price { x }	W x x
2.2	2	2.2 x 2 = 4.4
2.1	2	2.1 x 2 = 4.2
2	4	2 x 4 = 8
1.9	5	1.9 x 5 = 9.5
1.8	2	1.8 x 2 = 3.6
$\sum$ w = 10		$\sum$ w x = 29.7

$\frac{29.7}{10} = 2.97$ Answer

2) If the weighted average of the following tale is 4, find the value of A.

i)

x	2	A	4	5	1
Y	10	6	9	8	1

x = { 2, A , 4, 5, 1 }

Y = { 10, 6, 9, 8, 7 }

$$4 = \frac{(2 \text{ X } 10)+ (A \text{ X } 6)+ (4 \text{ X } 9)+ (5 \text{ X } 8)+ (1 \text{ X } 7)}{10+ 6+ 9+ 8+ 7}$$

$$= \frac{20+6A+36+40+7}{40}$$

$$4 = \frac{103+6A}{40}$$

160 = 103 + 6A $\qquad$ $A = \frac{57}{6} = 9.5$ Answer

6A = 57

ii)

x	3	2	6	7	5
Y	1.5	A	2.5	3.5	2.25

Solution:

x = { 3, 2 , 6, 7, 5 }

Y = { 1.5, A, 2.5, 3.5, 2.25 }

$$4 = \frac{(3 \text{ X } 1.5)+ (2\text{X } A)+ (6 \text{ X } 2.5)+ (7 \text{ X } 3.5)+ (5 \text{ X } 2.25)}{1.5+A+2.5+3.5+2.25}$$

3) The height of 16 foot ball of a team are given as under.

Height in meters	Weight {not of players}	
2.2	2	2.2 x 2 = 4.4
2.1	3	2.1 x 3 = 6.3
2.0	4	2.0 x 4 = 8
1.9	5	1.9 x 5 = 9.5
1.8	2	1.8 x 2 = 3.6
Total	16	= 31.8

4.4 + 6.3 + 8 + 9.5 + 3.6 = 31.8

$\frac{31.8}{16} = 1.9875$

4) The maximum temperature of sukkur for 15 days in the month of September is record as under.

Temperature °C	Number of days	
35	4	35 x 4 = 140
33	5	33 x 5 = 165
34	2	34 x 2 = 68
32	4	32 x 4 = 128
Total	15	= 501

140 +165 + 68 + 128 = 501

$\frac{501}{15}$ = 33.4 Answer

Chapter 6

ALGERA

1) Write the following using numerals, litera sings of basic cooperation.

1) 5 more than 6 times P.

Solution:

⇒ 6p + 5 Answer

2) Four times divided by seven.

Solution:

⇒ $\frac{4}{7}$ Answer

3) Product of three and m.

Solution:

⇒ 3m Answer

4) One half of C.

Solution:

⇒ $\frac{C}{2}$ Answer

5) Twelve taken a way from n.

Solution:

⇒ n – 12 Answer

6) The quotient of p by q.

Solution:

⇒ $\frac{p}{q}$ Answer

7) One fifth of the difference of a and b.

Solution:

⇒ $\frac{a-b}{5}$ Answer

8) m subtracted from I.

Solution:

⇒ I – m Answer

9) six times e added to five times d.

Solution:

⇒ 6c + 5d Answer

10) Ten length of the sides of a triangle are a cm, bcm and ccm respectively. Find the parameter of the triagle?

Solution:

⇒ a + b + c cm. is the parameter of triangle.
Answer

3) The length of two sides of a quadrilateral are x and y respectively and the lenth of each of the other two sides is equal to z. write the parameter of the quadrilateral in the form of an alyebraic expression.

Solution:

⇒ The parameter of the quadrilateral is
X + y + 2z Answer

4) The length of the table cloth is a meter and breadth is 6 meter. Find the length of dace to be served around it?

Solution:

⇒ The length of lace to be served around the table cloth is 2 { a + 6 } meter. Answer

5) Wrtite the expressions having one term. Two terms and three terms separately in the following 5a, 3b, 6b, 9x, 8a, + 6b + 3c, 8x + 94 + 103, 4p, 5s + 97, 11q, 5m + 8x, 9e + 196+ g, - 100.

Solution:

⇒ One term { monomials } : 5a, 9x, 11q, 4p

⇒ two term { binomials } : 3b, 6d, 5s, 97, 5m +8x

⇒ three term { trinomials} 8a + 6b + 3c, 8x + 94 + 103, 9e + 196 + g Answer.

6) Find the area of rectangle whose.

1) length = 4cm, breath = 3cm

Solution:

⇒ Area = length x breath
4cm x 3cm = $12cm^2$ Answer

2) Length = xcm, breath = 4cm

Solution:

⇒ Area = length x breath

⇒ xcm x 4cm, breath = ym

3) length = xcm, breath = ycm

Solution:

⇒ $xycm^2$ Answer

Exercise: 6.2

Find the variables and constants in the following statements.

1) x + 5

Solution:

⇒ Variable = x
Constant = a, b

2) 2 x

Solution:

⇒ Variable = x
Constant = 2

3) 2 x + 6

Solution:

⇒ Variable = x
Constant = 6

4) 3 x + 2y +7

Solution:

⇒ Variable = x,y
Constant = 7

5) ax + by

Solution:

⇒ Variable = x,y
Constant = a,b

6) a x + by +cz

Solution:

⇒ Variable = x,y,z
Constant = a,b,c

7) 15f + b

Solution:

⇒ Variable = f
Constant = 15,b

8) a x + by +c

Solution:

⇒ Variable = x,y
Constant = a,b,c

9) 9f + 4

Solution:

⇒ Variable = f
Constant = 4

10) 10x +15t + 20z + 30

Solution:

⇒ Variable = x,t,z
Constant = 4

Exercise: 6.3

1) Find the numbers of terms in the following algebraic expressions:

1) 5 x

Solution:

⇒ 1 term Ans

2) 10 xy

Solution:

⇒ 1 term Ans

3) 5y – 16

Solution:

⇒ 2 term Ans

4) 9x – 8z

Solution:

⇒ 2 term Ans

5) 7xy + 10

Solution:

⇒ 2 term Ans

6) 3x + 2y +9

Solution:

⇒ 3 term Ans

7) $7x^4 + 3x + 2x + 1$

Solution:

⇒ 4 term Ans

8) $7y^2 + 3$

Solution:

⇒ 2 term Ans

2) Find the degree and the coeffieient of the following algebraic expressions.

1) $2x^2 + 3x + 4$

Solution:

⇒ Degree = 2 , coefficient = 2, 3, 4
Answer

2) $125y^2 + 2y + 7$

Solution:

⇒ Degree = 2 , coefficient = 125, -2, 7
Answer

3) $100f^3$

Solution:

⇒ Degree = 3 , coefficient = 100

Answer

4) $10y^2$

Solution:

⇒ Degree = 4 , coefficient = 10

Answer

5) $16a^3 + 8a^2 + 4a + 2$

Solution:

⇒ Degree = 3 , coefficient = 16, 8,4,2

Answer

6) $y^3 + by^2 + cy + d$

Solution:

⇒ Degree = 3 , coefficient = 1,b,c,d

Answer

3) Find the base and the exponent of .

1) 8^2

Solution:

⇒ Base = 8
Exponent = 2
Answer

3) Z^3

Solution:

⇒ Base Z
Exponent = 3
Answer

2) 2^8

Solution:

⇒ Base = 2
Exponent = 8
Answer

4) a^x

Solution:

⇒ Base a
Exponent = x
Answer

5) $15y^{-7}$

Solution:

⇒ Base 15y
Exponent = -7
Answer

7) ab^{-1}

Solution:

⇒ Base ab
Exponent = -1
Answer

6) $10y^b$

Solution:

⇒ Base 10y
Exponent = 6
Answer

Exercise: 6.4

1) Identify the like terms in the following.

1) 5x, 3y, 2x, 2x, -x, 8

Solution:

⇒ like term with x: 5x, 2x, 2x, -x
Like term withy: 3y
Constant term : 8 Answer

2) up ^{2}q, –7, 8q, –p ^{2}q, –q, 10

Solution:

⇒ Like term with P ^{2}q up ,^{2}q –p ^{2}q
Like term with q : 8q , - q
Constant term : -7, 10 Answer

3) a^2 bc, ab^2, $3ab^2$, 3abc, ba^2c, cab

Solution:

⇒ Like term with a^2 bc : a^2 bc.
Like term with ab^2 : ab^2 $3bc^2$.
Like term with e^2 b : ba^2
Like term with abc : 3abc.
Constant term : C
Like term with abc:

4) $-5x^2$, $-16y^2$, 5xy, $3y^2$, $4x^2$,12xy

Solution:

⇒ Like term with x^2, : $5x^2$, $4x^2$
Like term with y: 16y, 3y
Like term with xy : 5xy, – 12xy Answer

5) Paq^2, $-aqp^2$, – 10, p^2aq, $6a^2pq$, $-5apq^2$, 15

Solution:

⇒ Like term with paq^2: paq^2 : paq^2, $-5apq^2$
Like term with p^2 aq : p^2aq
Like term with a^2pq : b a^2pq
Constant term : –10, 15 Answer

2) Pick the unlike terms.
8y, $12y^2$,12, 7, 7, x^2y **9,**$14y^2$

Solution:

⇒ 7, 12, 7, x^2y, 9 Answer

3) Select monomials, binomials, and frinomials out of the following.

1) 5x, $3x^2 + 5x$, x 5x $7y^2 + 6y + 8$
$3x + 7$, $9z^2 + 12z + x$, $6y + z$, 7 z^2

$2 + 3y + 5x^2$,$14x + x^2$, $21z^2$, $7z^3 + 8z^2 + 5z$
19x2 + y, y^2 + 19x.

Monomials: Example: 5x, x,5, $21z^2$
Binomials: Example : $3x + 7$, by + z, $14x + x^2y^2$+ 19 x
Trinomials: Example: $3x^2 + 5x$, $7y^2 + 6y + 8$, $9z^2$+ 12z, + x, 2+ 3y + $5x^2$,$7z^3$,+ $8z^2$+ 5z.

Therefore: the final answer is that the unlike Terms are 8y, $12y^2$, 12, 7, $7x^2y$, 9, $14y^2$.

Exercise: 6.5

1) $21x$, $5x$
Solution:
⇒ $21x + 5x = 26x$
Answer

2) 12y, –7y
Solution:
⇒ 12y + (– 7y) = 5y
Answer

3) $12x^2$, $10x^2$
Solution:
⇒ $21x^2 + (-10x^2) = 2x^2$
Answer

4) $3x^3$, $4y^2$
Solution:
⇒ $3x^3 + 4y^2$
Answer

5) $5x^2$, –10z
Solution:
⇒ $5x^2 - 10z$
Answer

6) $3z^2$, $21z^2$
Solution:
⇒ $3z^2 - 21z^2$
Answer

7) $29x^2y$, $-20x^2y$
Solution:
⇒ $29x^2y + (-20x^2y) = 9x^2y$
Answer

8) $15xy^2$, $-13x^2y$
Solution:
⇒ $5xy^2 - 13x^2y$
Answer

9) $51x^2z$, $2xz^2$

Solution:

$\Rightarrow$ $51x^2z + 2x^2z$

Answer

10) $100x^2 - 100x^2y$

Solution:

$\Rightarrow$ $100x^2 + (-100x^2) = 0$

Answer

Add the following binomials:

1) $2x^2 + 5x$, $3x^2 + 7x$

$\Rightarrow$ Solution:

$5x^2$ $12x$

Answer

2) $13x^2 + 8{,}5x^2 + 5$

Solution:

$\Rightarrow$ $18x^2 + 13$

Answer

3) $xy + yz$, $xz + 2yz$

Solution:

$\Rightarrow$ $xy + 3yz + xy$

Answer

4) $15f^2 + 10, -10, -10f^2$

Solution:

$\Rightarrow$ $5f^2$

Answer

5) $x + y$, $z + f$

Solution:

$\Rightarrow$ $x + y + z + f$

Answer

6) $23f^2 + 16x^2$, $15y^2 - 3z^2$

Solution:

$7f^2 + 12f$, $-3f - 5f^2$

$\Rightarrow$ Answer

7) $x^3 + y^3$, $y^3 + z^3$

Solution:

$\Rightarrow$ $x^3 + 3$, $3x^2 - z^3$

Answer

8) $7f^2 + 12f$, $-3f - 5f^2$

Solution:

$\Rightarrow$ $2f^2 + 9f$

Answer

9) $x^2 + 3$, $3x^2 - 7x$

Solution:

$\Rightarrow$ $4x^2 - 7x + 3$

Answer

10) $x^2 - 10x$, $-10y - 23y^2$

Solution:

$\Rightarrow$ $x^2 - 10x - 10y - 23y^2$

Answer

Add the following trinomials:

1) $x^2 + 12x + 15{,}3x^2 - 7x - 9$

Solution:

$\Rightarrow$ $9x^2 + 5x + 6$

Answer

2) $10y^2 + yx + 9x^2$, $-5y^2 - 5x^2 + 7xy$

Solution:

$\Rightarrow$ $5y^2 + 8xy + 4x^2$

Answer

3) $z^3 + 3z^2 + 6z + 6$

Solution:

$\Rightarrow$ $z^3 + 6$

Answer

4) $f^3 + f + 7$, $x^3 + 3x^3 + 2x$

Solution:

$\Rightarrow$ $f^3 + f + 7$, $x^3 + 3x^3 + 2x$

Answer

5) $25x^2 + 16x + 29$, $-11 - 15x^2 - 20$

Solution:

$\Rightarrow$ $10x^2 + 5x + 9$

Answer

6) $y^2 + x^3 + z^3$, $y^2 + x^2 + z^2$

Solution:

$\Rightarrow$ $y^2 + x^2$ $z^3 + y^3 + x^2 + z^2$

Answer

7) $y^3 - 13y^2 + 16y$, $-7y^2 - 7y + 7$

Solution:

$\Rightarrow$ $y^3 - 20y^2 + 9y + 7$

Answer

8) $11x^2 + 12y^2$, 13, $-12y^2 + 15x^2 + 6x$

Solution:

$\Rightarrow$ $4x^2 + 6x + 13$

Answer

9) $13x^2 + 17x^2 - 9$, $9x^3 - 15x^2 + 20$

Solution:

$\Rightarrow$ $4x^3 + 2yx^2 + 11$

Answer

10) $-10x^2 + 25x + 40$, $5x^2 - 20x - 30$

Solution:

$\Rightarrow$ $5x^2 + 5x^2 + 10$

Answer

Exercise: 6.7

Q.1: Simplify the following:

1) $x \times x^2$

Solutoin:

$= x \times x^2$

$1+2$

$= x$

$= x^3$ Ans

2) $x^2 \times x^3$

Solution:

$= x^2 \times x^3$

$2+3$

$= x$

$= x^5$ Ans

3) $x^5 \times x^{-3}$

Solution:

$= x^5 \times x^{-3}$

$5-3$

$= x$

$= x^2$ Ans

4) $x^{20} \times x^{-10}$

Solution:

$= x^{20} \times x^{-10}$

$20-10$

$= x$

$= x^{10}$ Ans

5) $x^{15} \times x^{-10}$

Solution:

$= x^{15} \times x^{-10}$

$15-10$

$= x$

$= x^5$ Ans

6) $x^{15} \times x^{-20}$

Solution:

$= x^{15} \times x^{-20}$

$15+20$

$= x$

$= x^{35}$ Ans

7) $x^{16} \times x^{17}$

Solution:

$= x^{16} \times x^{-17}$

$16+17$

$= x$

$= x^{33}$ Ans

8) $x^{10} \times x^{40}$

Solution:

$= x^{10} \times x^{40}$

$10+40$

$= x$

$= x^{50}$ Ans

9) $\frac{x^2}{x}$

Solution:

$\frac{x^2}{x}$

$2-1$

$= x$

$= x$ Ans

10) $\frac{y5}{y4}$

Solution:

$\frac{y5}{y4}$

$5-4$

$= y$

$= y$ Ans

11) $\frac{32}{b}$

Solution:

$\frac{32}{b}$

$32-10$

$= b$

$= b^{22}$ Ans

12) $\frac{21}{a}$

Solution:

$= \frac{21}{a}$

$= a^{21-7}$

$= a^{14}$ Ans

13) $\frac{50}{z}$

Solution:

$\frac{50}{z}$

z^{50-25}

$= z^{25}$ Ans

14) $\frac{40}{a}$

Solution:

$\frac{40}{a}$

A^{40-5}

$= a^{35}$ Ans

15) $\frac{z^{100}}{z}$

Solution:

$\frac{z^{100}}{z}$

$= z^{100-18}$

$= z^{82}$ Ans

Exercise: 6.8

Q.1: Simplify the following.

1) $2x \times 4x^3$

Solution:

$= 2x \times 4x^3$

$= 2 \times 4 \times x \times x^3$

$= 8x^{1+3}$

$= 8x^2$ Ans

2) $5x^2 \times 3x^3$

Solution:

$= 5 \times 3 \times x^2 \times x^3$

$= 15x^{2+3}$

$= 15x^5$ Ans

3) $6x^4 \times 3x^3$

Solution:

$= 6x^4 \times 3x^3$

$= 6 \times 3 \times x^4 \times x^3$

$= 18x^{4+3}$

$= 18x^7$ Ans

4) $6x^4 \times 3x^3$

Solution:

$= 6x^4 \times 3x^3$

$= 6 \times 3 \times x^4 \times x^3$

$= 18x^{4+3}$

$= 18x^7$ Ans

5) $4a^3 \times 3a^7$

Solution:

$= 4a^3 \times 3a^7$

$= 4 \times 3 \times a^3 \times a^7$

$= 12a^{3+7}$

$= 12a^{20}$ Ans

6) $5x^2 \times 4y^2$

Solution:

$= 5x^2 \times 4y^2$

$= 5 \times 4 \times x^2 \times y^2$

$= 20x^2y^2$ Ans

7) $2x^2 \times y \times xy$

Solution:

$= 2x^2 \times y \times xy$

$= 2 \times 4x^2 \times x \times y$

$= 8x^{2+1}y$

$= 8x^3y$ Ans

8) $7y^2t^2 \times 8yt$

Solution:

$= 7y^2t^2 \times 8yt$

$= 7 \times 8y^2 \times y \times t^2 \times t$

$= 56y^{2+1}t^{2+1}$

$= 56y^3t^3$ Ans

9) $10y^2z \times 11y^2zt^3$

Solution:

$= 10 \times 11 \times y^2 \times y^2 \times z \times z^3 \times t^3$

$= 110y^{2+2} \times 2$

$= 110y^4z^4t^3$ Ans

10) $76^2a^2y \times 8a^2yb^2$

Solution:

$= 7 \times 8a^2 \times a^2 \times b^2 \times y \times y$

$= 56 \times a^{2+2} \times b^{2+2} \times y$

$= 56a^4b^4y^2$ Ans

11) $x ay^2 byt$

Solution:

$= x ay^2 byt$

$= ab x y^{1+1} t$

$= ab x y^2 t$

Ans

12) $ay^2 t^{2 \times} 8t^2$

Solution:

$= 8ay^2 t^2 t^3$

$= 8\ ay^2\ t^{2+4}$

$= 8\ ay^2\ t^6$

Ans

Q.2: Simplify.

2) $8^6 \div 8$

Solution:

$= 8^6 \div 8$

$= 8^{6-1} \div 8$

$= 8^5$ Ans

2) $6^6 \div 6^2$

Solution:

$= 6^6 \div 6^2$

$= 6^{5-1}$

$= 6^3$ Ans

3) $a^5 \div a^2$

Solution:

$= a^5 \div a^2$

$= 8^{5-2}$

$= a^5$ Ans

4) $x^8 \div x^3$

Solution:

$= x^8 \div x^3$

$= x^{8-3}$

$= x^5$ Ans

5) $a^3 \times a^3 \div a^6$

Solution:

$= a^3 \times a^3 \div a^6$

$= a^{3+3} \div a^6$

$= a^6 \div a^6 = a^{6-6}$

$= a = 1$

Ans

6) $49\ x^7\ y^{12} \div 7\ x^3\ y^4$

Solution:

$= 49\ x^7\ y^{12}$

$= 7\ x^3\ y^4$

$= 7\ x^3\ y^8$

Ans

7) $a^2 \times a^3 \div a$

Solution:

$= a^2 \times a^3 \div a^1$

$= a^{2+3} \div a^1$

$= a^{5-1} \Rightarrow a^5 \div a^1$

$= a^{5-1} \Rightarrow a^4$

Ans

8) $5a^7 \div a^4$

Solution:

$= 5a \div a^4$

$= 5a^{7-4}$

$= 5a^5$

Ans

9) $6x^3 \times 2x$

Solution:

$\frac{6x3}{2x}$

$= 3x^{3-1}$

$= 3x^2$ Ans

10) $9^5 \div 9^3$

Solution:

$= 9^5 \div 9^3$

$= 9^{5-3}$

$= 9^2$

Ans

Exercise: 6.9

Q.1: Simplify:

1) $2 \times (x + 4)$

Solution:

$2 \times (x + 4)$

$= 2x \times x + 2x \times 4$

$= 2x^2 + 8x$

Ans

2) $3x (x^2 + 2x + 1)$

Solution:

$= 3x (x^2 + 2x + 1)$

$= 3x \times x^2 + 3x \times 2x + 3x \times 1$

$= 3x^3 + 6x^2 + 3x$

Ans

3) $2 (x + 2)$

Solution:

$= 2 \times x + 2 \times 2$

$= 2 \times + 4$

Ans

4) $x^2(3x^3 + 2x^2 + x + 6)$

Solution:

$= x^2 \times 3x^3 + x^2 \times 2x^2 + x^2 \times x + x^2 \times 6$

$= 3x^5 + 2x^4 + x^3 6x^2$

Ans

5) $6xy$ by $2x$

Solution:

$= 6xy$ by $2x$

$= (6xy)\ (2x)$

$= 12x^{1+1}y$

$\Rightarrow 12x^2\ y$

Ans

6) a (ab +bc+ cd)

Solution:

= a x ab + a x bc + a x cd

$= a^2b + abc + acd$

Ans

7) $\frac{1}{x}(x^2 + 3x)$

Solution:

$= \frac{x^2+3x}{x}$

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

$\Rightarrow (x + 3)$

Ans

8) $3x^2 (x^2 + x + 5)$

Solution:

$= 3\ x^2 \times x^2 + 3x^2 \times x + 3x^2 \times 5$

$= 3x^4 + 3x^3 + 5x^2$

Ans

9) $(x +2)(x+1)$

Solution:

$= x(x+1)+2(x+1)$

$= x^2 + 3x + 2$

Ans

10) $(a – b)(a + b)$

Solution:

$= a(a+ b) –b(a+b)$

$= a^2 + ab – ab + b^2$

$= a^2 + b^2$

Ans

Exercise: 6.10

1) $x – 1 = 2$

Solution:

$x – 1 = 2$

$x – 2 + 1$

$\boxed{x = 3}$

2) $x – 3 = 5$

Solution:

$x – 3 = 5$

$x = 5 + 3$

$\boxed{x = 8}$

3) $x – 5 = 6$

Solution:

$x – 5 = 6$

$x = 6 + 5$

$\boxed{x = 11}$

4) $x – 7 = 9$

Solution:

$x – 7 = 9$

$x = 9 + 7$

$\boxed{x = 16}$

5) $x – 5 = 10$

Solution:

$x – 5 = 10$

$x = 10 + 5$

$\boxed{x = 15}$

6) $x + 2 = 4$

Solution:

$x + 2 = 4$

$x = 4 – 2$

$\boxed{x = 16}$

7) $x + 7 = 5$

Solution:

$x + 7 = 5$

$x = 5 –7$

$\boxed{x = –2}$

8) $x + 4 = 7$

Solution:

$x + 4 = 7$

$x = 7 – 4$

$\boxed{x = 3}$

9) $x + 6 = 10$

Solution:

$x + 6 = 10$

$x = 10 - 7$

$\boxed{x = 4}$

10) $x + 4 = 14$

Solution:

$x + 4 = 14$

$x = 14 - 4$

$\boxed{x = 10}$

11) $\frac{1}{2}x = 2$

Solution:

$\frac{1}{2}x = 2$

$\frac{1}{2} = 2,\ x = 2x2$

$\boxed{x = 4}$ Ans

12) $\frac{1}{3}x = 4$

Solution:

$\frac{1}{3}x = 4$

$\frac{x}{3} = 4,\ x = 3\ x4$

$\boxed{x = 12}$

13) $\frac{1}{4}x = 3$

Solution:

$\frac{1}{4}x = 3\ ,\frac{x}{4} = 3$

$x = 8\ x\ 3,$

$\boxed{x = 24}$ Ans

14) $\frac{1}{6}x = 6$

Solution:

$\frac{1}{6}x = 6$

$\frac{x}{6} = 6,\ x = 6\ x6$

$\boxed{x = 36}$

15) $\frac{1}{8}x = 3$

Solution:

$\frac{1}{8}x = 3\ ,\frac{x}{8} = 3$

$x = 8\ x\ 3,$

$\boxed{x = 24}$ Ans

16) $2x = 4$

Solution:

$2x = 6$

$x = \frac{4}{2}$

$\boxed{x = 2}$

17) $3x = 9$

Solution:

$3x = 9$

$x = \frac{9}{3}$

$\boxed{x = 3}$ Ans

18) $5x = 10$

Solution:

$5x = 10$

$x = \frac{10}{5}$

$\boxed{x = 2}$

19) $4x = 16$

Solution:

$4x = 16$

$x = \frac{16}{4}$

$\boxed{x = 4}$ Ans

20) $6x = 18$

Solution:

$6x = 18$

$x = \frac{18}{6}$

$\boxed{x = 3}$

Chapter 7

GEOMETRY

Exercise: 7.1

1) Find the area of four walls according to given table:

Room	Length	Breath	Height	Area of 4 walls
1	6 m	4 m	3 m	$60m^2$
2	8 m	7 m	4 m	$120m^2$
3	10 m	5 m	3.5 m	$105m^2$

Formula: {length x height x breath x height }

- Room1: $2x \{ 6m \times 3m + 4m \times 3m \} = 2 \times \{18m^2 + 12m^2) = 60m^2$
- Room2: $2x \{ 8m \times 4m + 7m \times 4m \} = 2 \times \{ 32m^2 + 28m^2) = 120m^2$
- Room 3: $2x \{ 10mx\ 3.5m + 5m + 5m \times 3.5\} = 2x \{35m^2 + 17.5m^2\} = 105m^2$

2) A plate form is 6.4m long.3.6m wide and 1.5m high. Find area of its four sides.

Solution:

$\Rightarrow$ $2 \times \{$ Length x height + breath x height$\}$
$2 \times \{ 6.4m \times 1.5m + 3.6m \times 1.5m\}$
$2 \times \{ 9.6m^2 + 5.4m^2 \}\ 30m^2$ Answer.

3) A car board bon is 0.7m long, 0.5m wide and 0.4m high how much car board is required to make its four sides.

Solution:

$\Rightarrow$ $2 \times \{$ Length x width + length x height + width x height +$\}$
$2 \times \{0.7, \times 0.5m + 0.7m \times 0.4m + 0.5m \times 0.4m\}$
$2 \times \{ 0.35m^2 + 0.28m^2 + 0.2m^2) = 1.7m^2$ Ans

4) The length fo a room is 75m breadth is 5.5m and height is 3.5m. 20sq mether are is covered by doors windows and ventilators find the cost of distemper on four walls of the rate of Rs. 30 per square.

Solution:

$\Rightarrow$ $2 \times \{$ Length x height + breath x height$\}$
$2 \times \{ 7.5m \times 3.5m + 5.5m \times 3.5m\}$
$2 \times \{ 26.25m^2 + 19.25m^2 \} = 91m^2$
$91m^2 - 20m^2 = 71m^2.$
$71m^2 \times$ Rs: $30/m^2$ = Rs: 2130 Answer

5) A tank is 50 meter long, 25 meter wide and 4 meter deep. Find the cost of plaster on it four walls and floor at the rate of Rs. 25 per square meter.

Solution:

$\Rightarrow$ $2 \times \{$ length x height + width x height$\}$
$2 \times \{ 50m \times 4m + 25m \times 4m \}$
$2 \times \{ 200m^2 + 100m^2 \} = 600m^2$
Length x width = $50mx\ 25m = 1250m^2$
$\{ 600m^2 + 1250m^2\} \times$ Rs: $25/m^2$ = Rs: 46250

6) The length, breadth and height of a room is 8m, 6m and 4m respectively. There is one door of size $1\frac{1}{2}$ mx $2\frac{1}{2}$ m, two windows each of size $\frac{1}{2}$ mx $1\frac{1}{4}$ m and 8 ventilators each of six 0.3m x 0.5m. what is the cost white washing on its four walls at the rate of Rs.5 per square meter.

Solution:

⇒ 2 x { Length x height } +2 x { breath x height}
2 x { 8 x 4 } + 2 x { 6 x 4 } = 64 + 48 = 112m²
The are of door is $1\frac{2}{3}$ x $2\frac{1}{2} = \frac{5}{3}$ x $\frac{5}{2}$ = $\frac{25}{6}$ m²
The area of 1 window is 0.3 x 0.5 = 0.18m²
The area of 2 windows is 2 x 0.15 = 0.3m²
The area of 1 ventilator is 0.3 x 0.5 = 0.15m²
The area of 8 ventilator is 8 x 0.15 = 1.2m²

The area to be white warhead is the total area of the walls minus the area of the door, windows and ventilators.
$112\ \frac{-25}{6}$ – 0.3 – 1.2 = 112 – 4.1667 – 0.3 – 1.2 = 106.3333m²
106.3333 x 5 = Rs. 531.67 Answer

7) The length, breadth and height of a hall is 25 meter, 15meters and 6 meters respectively. It has 4 doors each of size $1\frac{1}{2}$ m x $2\frac{1}{3}$ m and 8 ventilators each of size 0.5m x 0.3m. find the cost of the plaster on 4 walls at the rate of Rs. 20 per square meter.

Solution:

⇒ 2 x { 25 x 6} + 2x{15 x 6} = 300 + 180 = 480m²
A area of one door is $1\frac{2}{2}$ x $2\frac{1}{3}$ $\frac{-3}{2}$ x $\frac{7}{3} = \frac{7}{2}$ = 3.5m²
A area of 4 door is 4 x 3.5 = 14m²
The area of one window is 1 x $2\frac{1}{2} = \frac{5}{2}$ = 2.5m²
The area of eight windows is 8 x 2.5 = 20m²

The area of one ventilators is 0.5 x 0.3 = 0.15m²
480 – 14 – 20 – 1.2 = 444.8m²
444.8 x 20 = Rs. 8896 Answer

8) The length of a hall is 25 meter breath is 10 meters and height is 4 meters. Find the cost of wall paper of 4 wall at the rate of Rs. 12.50 per meter. The breadth of the wall paper is 1.25 meters.

Solution:

⇒ 2 x 25 x 4 = 200 square meters.
2 x 10 x 4 = 80 square meters.
200 + 80 = 280 square meters.
$\frac{280}{1.25}$ = 224 meters.
Total cost = 224 x 12.50 = Rs. 2800 Answer

Exercise:7.2

1) Find the area of parallelogramic region whose base is 4cm and altitude is 3cm.

Formula: base x altitude
4cm x 3cm = 12cm² Answer

2) Find the area of parallelogramic region having following measures.

1) Base = 4.5cm, Altitude = 3.5cm

Solution:

⇒ 4.5cm x 3.5cm = 15.75cm²

2) Base = 39mm, Altitude = 20mm
39 x 20 = 7.8cm² Answer

3) Base = 25m, Altitude = 18m

Solution:

Area = 25m x $18m^2$ = $450m^2$ Answer

3) The area of parallelogramic is 50sq.cm if the length its base is 10cm. Find the altitude.

⇒ **Fomula:** Altitude = $\frac{\text{Area}}{\text{Base}}$

Altitude = $\frac{50cm2}{10cm2}$ = 5 cm Answer

4) The area of a parallelogramic is 15sq cm. it the length its base sum, find the length of altitude.

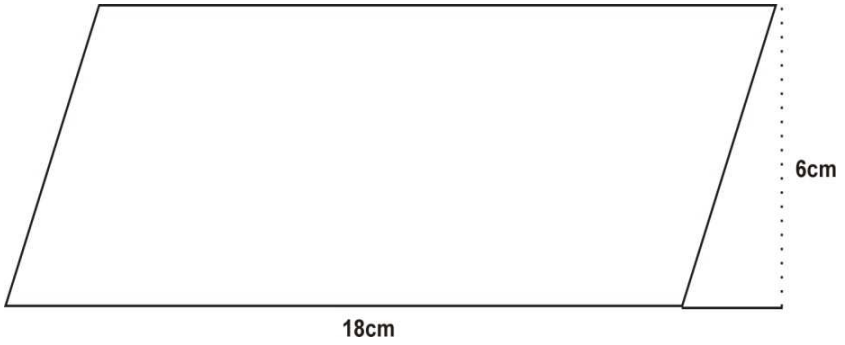
Solution:

⇒ altitude = $\frac{15cm2}{8cm2}$ = 1.875cm Answer

5) The area of a parallelogramic is 135cm. it the length of its altitude is 9cm. find the length of base.

Formula: Base = $\frac{Area}{altitude}$ Answer

6) find the area of the following regions:



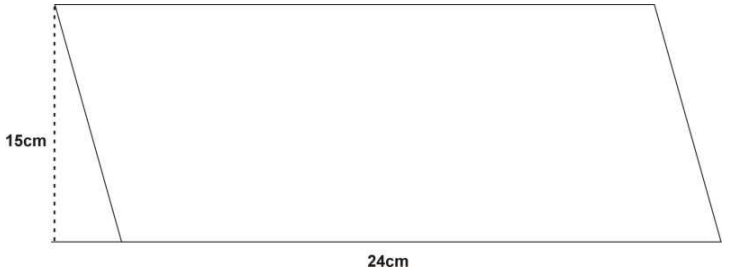
Solution:

⇒ **Formula:** $\frac{1}{2}$ x base x height

$\frac{1}{2}$ x 18 x 6 = 54sq

Total area = 2 x 54 = 108sq.cm Answer.

2)



Solution:

Area 2 = $\frac{1}{2}$ x 24 x 15 = 180sq.cm

Total area = 2 x 180 = 360sq.cm Answer

Exercise: 7.3

Find the area of the following:

1) A triangle ABC whose base = 4cm and altitude = 7cm

Solution:

Formula: **Area =** $\frac{1}{2}$ x base x altitude

Area = $\frac{1}{2}$ x 4cm x 7cm = $14cm^2$

2) A triangle PQR whose base = 4mm and altitude = 16mm.

Solution:

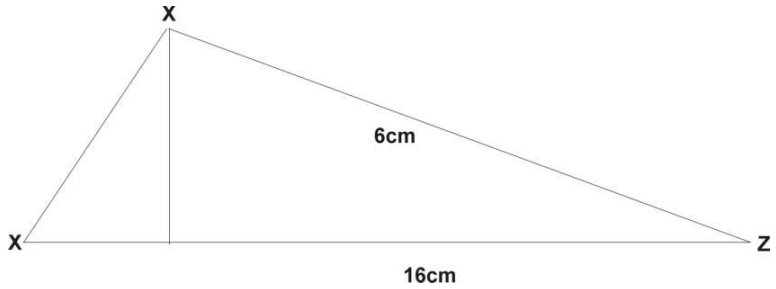
⇒ Area = $\frac{1}{2}$ x 4mm x 16mm = 32 mm^2. Ans

3) A triangle x, y, z whose base = 8m and altitude = 6m.

Solution:

⇒ Area = $\frac{1}{2}$ x 8m x 6m = $24m^2$ Answer

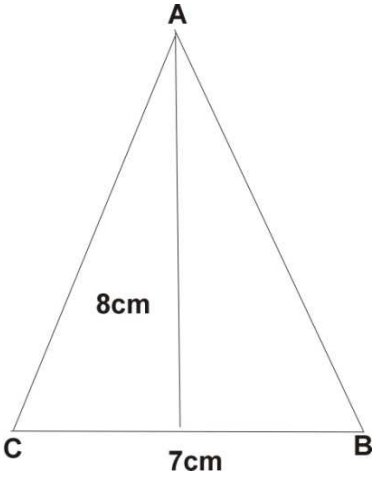
4) Find the area of the triangular regions.



Solution:

⇒ Formula: $\frac{\text{base x altitude}}{2}$

$\frac{16 \times 6}{2} = \frac{96}{2} = 48cm$ Answer

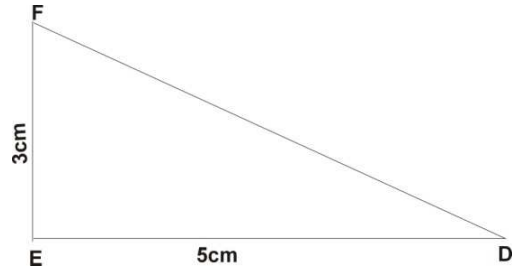


2)

Solution:

$= \frac{7 \times 8}{2} = \frac{56}{2} = 28cm$ Answer

3)



Solution:

$\frac{5 \times 3}{2} = \frac{15}{2} = 7.5$ Answer

5) The field of a farmer is of the following shape. Find its area.

Solution:

= Area =

Solution:

Area = $\frac{80 \times 20 \times 50}{2} = \frac{80{,}000}{2}$

40,000 Answer

Exercise: 7.4

1) Find the volume of following cuboids.

1) Length = 12cm, width = 5cm, height = 4cm

Solution:

⇒ Formula: length x width x height
12 x 5 x 4 = 240 Cubic cm Answer

2) Length = 50m. width = 30m, height = 10m

Solution:

⇒ 50 x 30 x 10 = 15,000 Cubin cm Answer

3) Length = 8mm, width = 7mm, height = 8mm

Solution:

⇒ 8 x 7 x 8 = 448 Cubic mm Answer

4) Length = 40m, width = 20cm, height = 10cm

Solution:

⇒ 40 x 20 x 10 = 8000 Cubic cm Answer

2) Find the volume of a box whose length is 9cm width is bcm and height is 4cm.

Solution:

⇒ 9 x 6 x 4 = 216 cubic cm Answer

3) The length, breadth and height of a room is 11m. 7m and 4m respectively.Find the volume of room.

Solution:

⇒ 11 x 7 x 4 = 308 cubic cm Answer

4) A pond is 10m long. 7m wide and 3m deep.Find volume of water required to fill the pond.

Solution:

⇒ 10 x 7 x 3 = 210 cubic cm Answer

5) A cube has its side 7cm long. Find its volume.

Solution:

⇒ Formula: Side x sidex side
7 x 7 x7 = 343 cubic cm Answer

6) Find the volume of the cubes with the following measure. {sides}.

1) 3cm

Solution:

⇒ 27 cubic cm Answer

2) 9 cm

Solution:

⇒ 9 x 9 x 9 = 729 cubic cm Answer

3) 8mm

Solution:

⇒ 8 x 8 x 8 = 512 cubic cm Answer

7) A boy made a large cube with the help of 8 small cubes of 1 cubic centimeters side: find:

1) The volume of large cube.

Solution:

⇒ 8 x 1 = 8 cubic cm Answer

2) The length of side of the large cube.

Solution:

⇒ 8 x 8 x8 = 512

512 Answer

8) Cost 1 cubic meter wood is Rs. Find cost of a long of wood which is 4meter long.1.5 meter wide and 2 meter thick.

Solution:

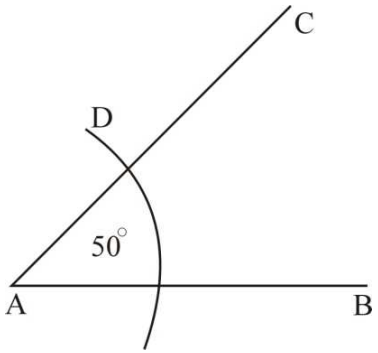
⇒ 100 x 4 x 1.5 x 2 = 1200 Answer.

EXERCISE: 7.5

Q.1 Draw the following angles with the help of protractor then bisect them.

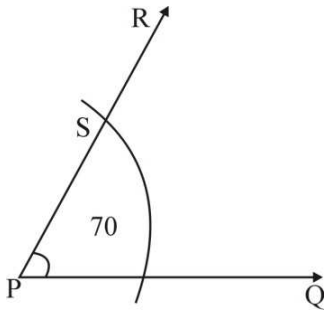
i) 50°

Solution:



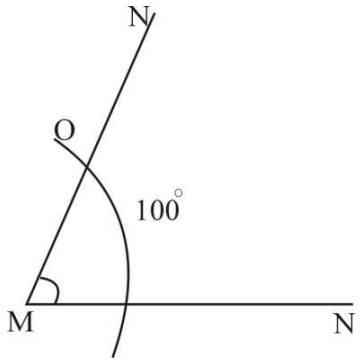
ii) 70°

Soluton:



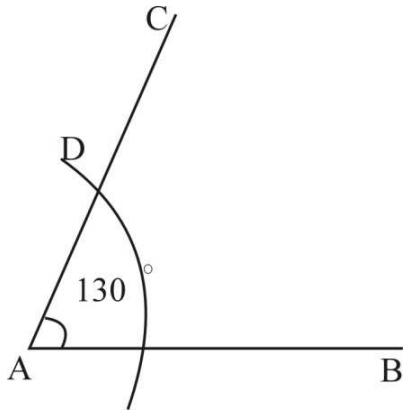
iii) 100°

Solution:



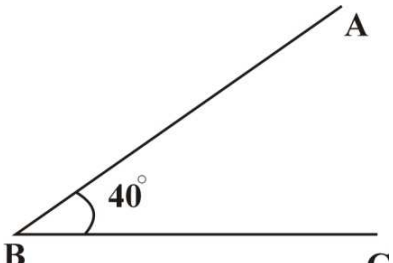
iv) 130°

Solution:



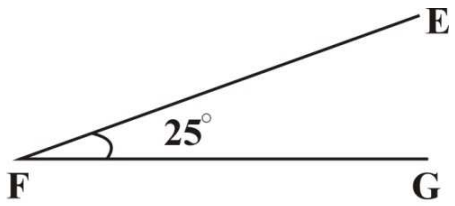
Q.2 Draw the angle equal in measure of the following angles with the help of composs and rule check your answer with the protractor.

(a)



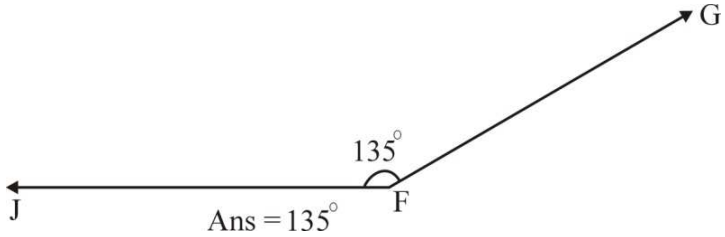
Ans = 40°

(b)



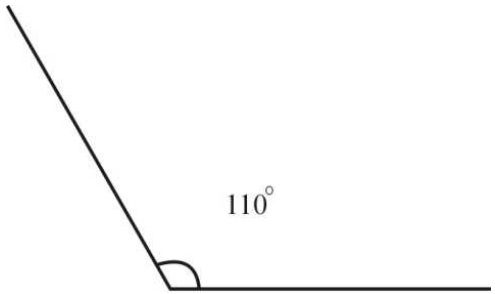
Ans = 25°

(iii)



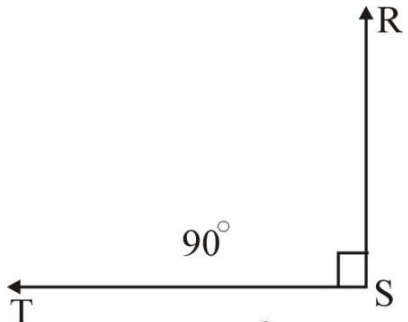
Ans = 135°

iv)



Ans = 110°

(v)



Ans = 90°

Q.3 Construct the following angles with the help of composs and rules.

i) m<ABC = 60°, where mAB = 4cm and mBC = 3cm

ii) m<ABC = 90°, where mAB = 5cm and mBC 4cm

<u>Step of construction:</u>

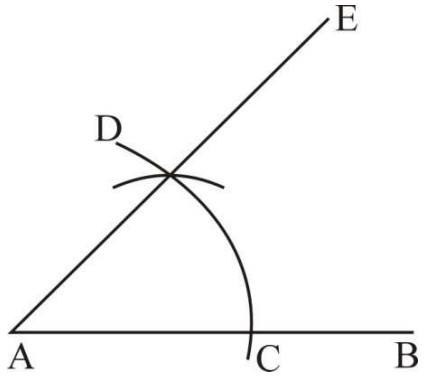
i) Draw a line segment $\overline{AB}$ = 4cm.

ii) Take A as center and draw an arc with suitable radius, intersecting AB at point C.

iii) Now take point C as center and draw an arc with same radiuse, which cuts the precious arc at D.

iv) Joint the points A and D and produce upto E.

v) <ABC = 60° is the required angle.



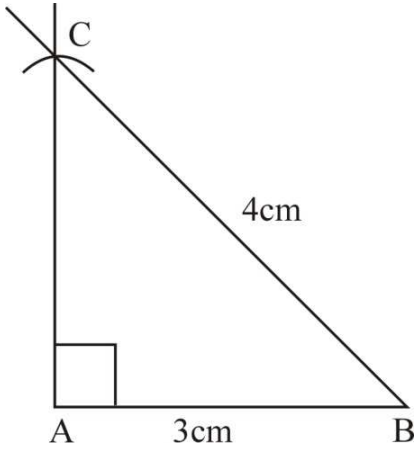
ii) m<ABC = 90° where mAB = 3cm and mBC = 4cm.

<u>Steps of construction:</u>

i) Draw a line segment $\overline{AB}$ = 3cm.

ii) Take A as a center and an arc with suitable radius, intersecting AB at point C.

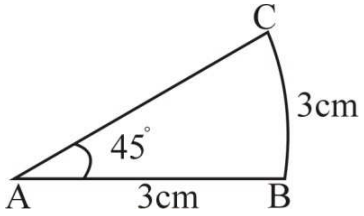
iii) Now take point C as ceter and draw an arc with same radius, which cuts the precious arc at D.
iv) Joint the point A and D and produce upto E.
v) <ABC = 90° is the required angle.



iii) m<ABC = 45° , where mAB = 3cm and mBC = 5cm.

Steps of construction:

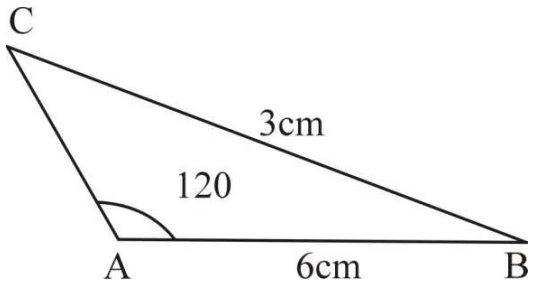
i) Draw a line segment of AB = 3cm
ii) Take A as center and draw and arc with suitable radius, intersecting $\overline{AB}$ at point C.
iii) Now take point C as center and draw an arc with same radius, which cuts the precious arc at D.
iv) Join the point A and D and produce upto E.
v) <ABC = 45° is the required angle.



iv) m<ABC = 120°, where mAB = 60m and mBC = 3cm.

Steps of construction:

i) Draw a line segment $\overline{AB}$ = 6cm.
ii) Take point A as a center and draw an arc with suitable radius intersecting AB at point C.
iii) Take C as center and draw an arc with the same radius intersecting the previous arc at D.
iv) Join the points A and produce it up to F.
v) < ABC = 120 is the required angle.



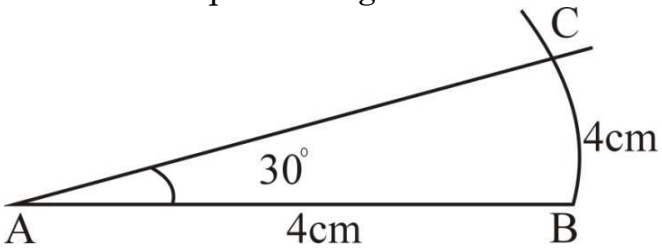
v) m<ABC = 30°, where mAB = 4cm and mBC = 4cm.

Steps of construction:

i) draw a line segment $\overline{AB}$ of 4cm.
ii) Take A as center and draw an arc with suitable radius intersecting AB at point C.
iii) Take C as center and draw an arc of sam radius intersecting previous at D.

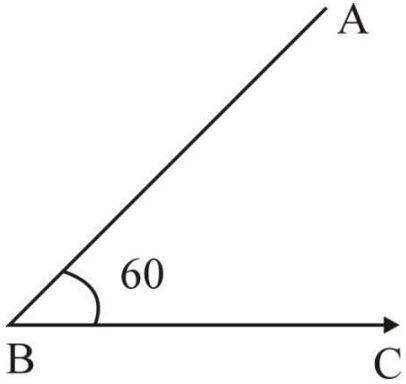
iv) Now take point C and D centers and draw two arcs of same radius intersecting one another at point E.

v) From point A draw a ray AE. Angle <ABC = 30° is the required angle.

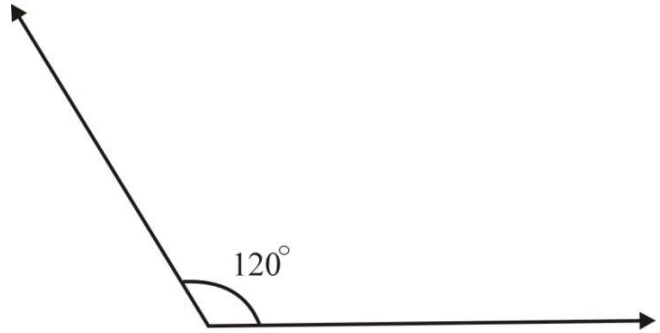


Q.4 Draw the following angles with the help of compass and rules.

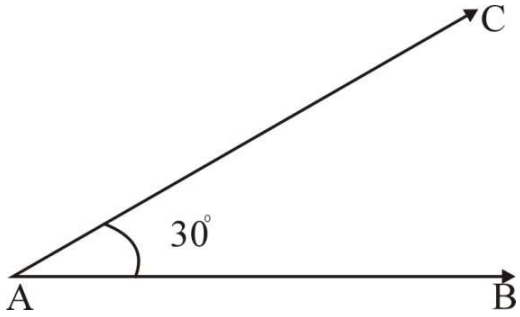
i) 60°



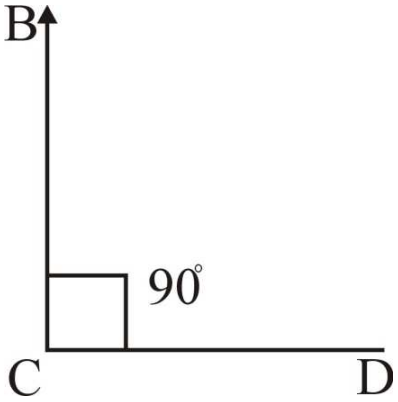
ii) 120°



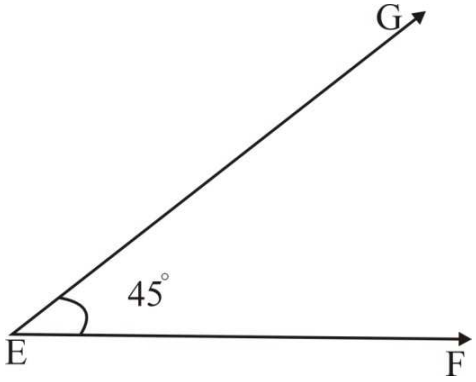
iii) 30°



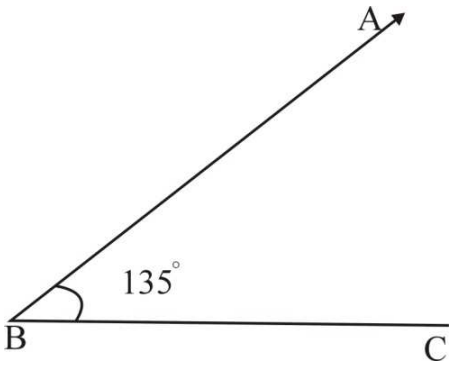
iv) 90°



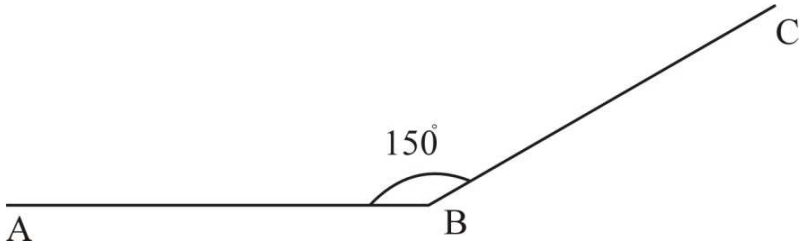
v) 45°



vi) 135°



vii) 150°



EXERCISE: 7.6

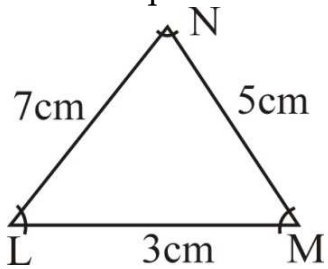
Q.1 Construct a triangle LMN when.

i) mLM = 3cm, mMN = 5 and mLN = 7cm.

Solution:

Steps of construction:

i) Draw mLM = 3cm.
ii) Draw the mMN = 5cm.
iii) In the end join mLN = 7cm.
iv) Here LMN is required triangle,

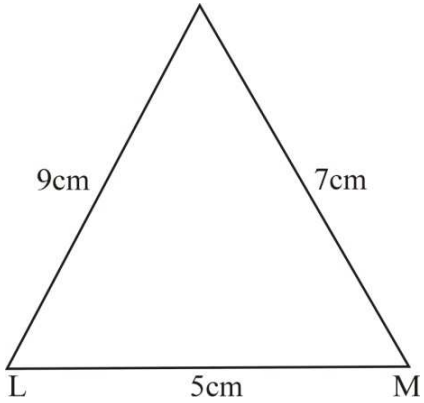


b) mLM = 5cm, mMN = 7cm, and mLN = 9cm

Solution:

Step of construction:

i) Draw mLM = 5cm.
ii) Draw mMN = 7cm
iii) In the end join mLN = 9cm.
iv) Here LMN is the required triangle.

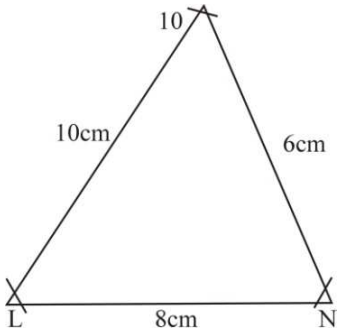


3. mLM = 8cm, MN = 6cm, and mLN = 10cm.

Solution:

Step of construction:

i) Draw m LM = 8cm
ii) Draw mMN = 6cm
iii) In the end join mLN = 10cm.
iv) Here LMN is the required triangle.



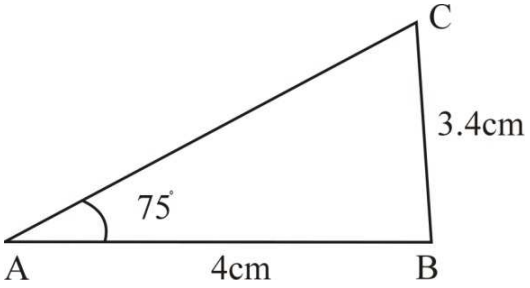
Q.2 Construct a triangle AB.

(a) m< ABC = 75°, m$\overline{BC}$ = 3.4 cm, m$\overline{AB}$ = 4cm

Solution:

Steps of construction:

i) Draw AB of measure 4cm
ii) Make an angle ABC = 75°
iii) Fm AB cut off $\overline{AC}$ equal to 4cm.
iv) Draw $\overline{BC}$
Now triangle ABC is the required triangle.

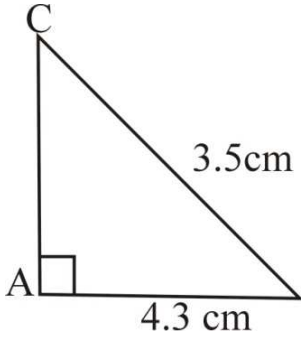


6) m<AB = 90°, m$\overline{BC}$ = 3.5cm, m$\overline{AB}$ = 4.3cm.

Solution:

Steps of triangle:

i) Draw AB of measure 4.3 cm
ii) Make an angle ABC measuring 90°
iii) From $\overline{AB}$ out off $\overline{BC}$ = 3.5cm
iv) Draw $\overline{BC}$
Now triang ABC is the required triangle.

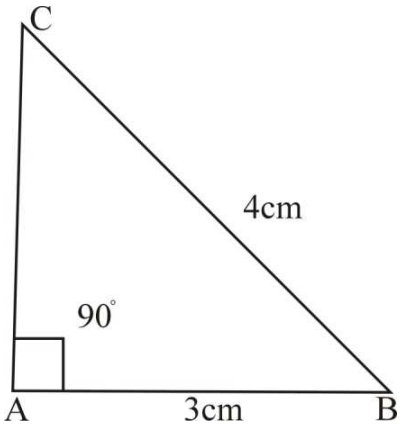


(c) m<ABC = 90°, mBC = 4cm, mAB = 3cm

Solution:

Steps of construction:

i) Draw AB of measure 3cm.
ii) Make an angle ABC measuring ABC 90°
iii) From AB cut off $\overline{BC}$ = 4cm
iv) Draw $\overline{BC}$
Now triangle ABC is the required triangle.



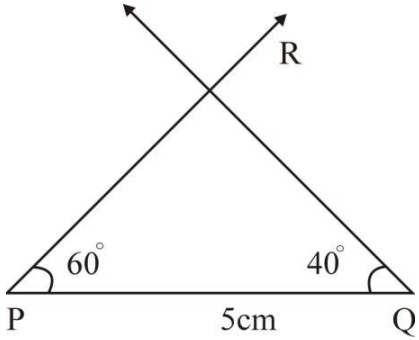
Q.3 Construct a triangle PQR when

(a) mPQ = 5cm, m<Q = 40°, m<P =60°

Solution:

Steps of construction:

i) Draw $\overline{PQ}$ = 5cm
ii) At point Q and P make angles of 60° and 40° respectively with the help of protractor.
iii) The arms of these angles intersect at poit R.
iv) Now triangle PQR is the required triangle.

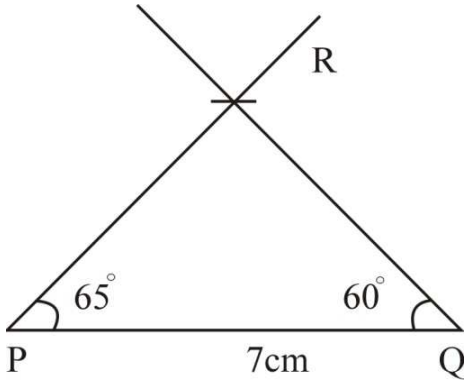


(b) mPQ = 7cm , m<P = 65° , m<Q = 60°

Solution:

Steps of construction:

i) Draw mPQ = 7cm.
ii) At point P and Q make angles of 65° and 60° respectively with the h elp of protractor.
iii) The arms of these angles intersect at point R
iv) Now triangle PQR is the required triangle.

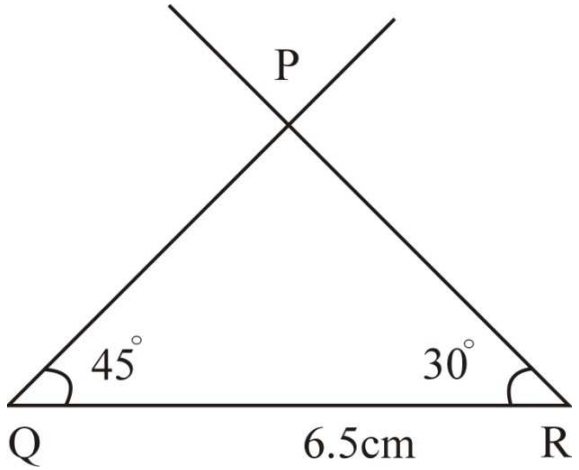


(c) mQR = 6.5cm, m<Q = 45 , m<R = 30

Solution:

Steps of construction:

i) Draw mQr = 6.5 cm
ii) At point Q and R make angles of 45° and 30° respectively with the help of protractor.
iii) The arms of these angles intersect at point P.
iv) Now triang PQR is the required triangle.



Chapter 8

INFORMATION HANDLING

Exercise: 8.1

1) A circular cake is distributed among Rizwan, Marium and Sidra. The division of cake is shown in the following picture.

1) Who gets most of the cake?
➢ Rizwan. Answer
2) Who gets least of the cake?
➢ Sidra Answer
3) Who gets more cake Sidra or Rizwan?
➢ Rizwan. Answer
4) Who gets less cake Marium or Sidra?
➢ Sidra. Answer

2) The marks obtained in different subject of Aftab.

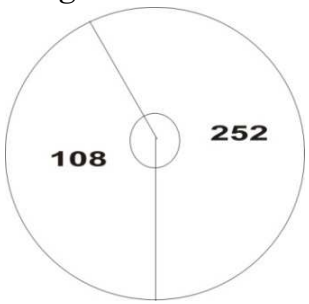
1) In which subject Aftab secured highet marks?
➢ Science Answer
2) In which subject Aftab secured lowest marks?
➢ Islamiat? Answer.

3) In which subject Aftab secured more marks or maths?
➢ Science. Answer

4) Ages of 100 student of class vi are shown by the following pie graph.

Here

1) Sector with angle 108° represents the students of age less than 12 years.



2) Sector with angle 252° represents the students of age more than 12 years.

Here:

$\frac{360}{100}$ = 3.6° Represent one student

1) How many students are of the age less than 12 years?
➢ 30 students. Answer.
2) How many students are of the age of more than 12 years?
➢ 70 students. Answer
3) How are more students under or over 12 years of are.
➢ Over 12 years old. Answer

4) How much more student are there than 12 years?

➢ 40 students. Answer

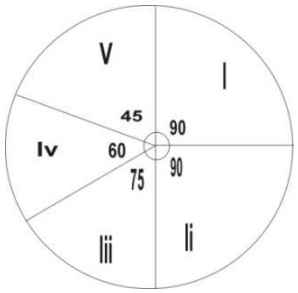
5) How many students are there in the class?

➢ 100 students? Answer

4) The following pie graph shown the attendance of the students of different classes on Saturday.

Total number of students is 720

Attendances of students.



1) How many students were prentent in class I?

➢ 90: Answer

2) What was the attendance in class II?

➢ 90: Answer

3) In which class attendance was the highest?

➢ I and II. Answer

4) In which class attendance was the lowest?

➢ 45°. Answer

5) How many students were present in class v?

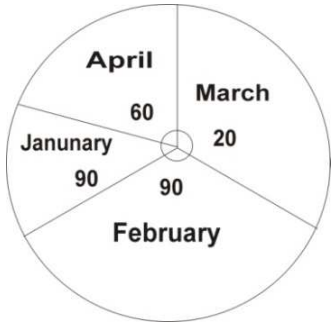
➢ 45°. Answer

6) Prepare the chart of the attendance?

Class	I	II	III	IV	V
Attendance	180	180	150	120	90

5) Pie graph given below shows the income of doctor for four months.

Income of the doctor



1) What was the income of the doctor in January?

➢ 6000. Rs. Answer

2) What was the income of the doctor in February?

➢ 6000 Rs. Answer

3) What was the income of the doctor in March?

➢ 8000. Rs Answer

4) What was the income of the doctor in April?

➢ 4000 Rs. Answer

5) What was the highest of the income in doctor?

➢ March Answer

6) What was the lowest income of the doctor.

➢ April. Answer

7) Prepare the chart of income of the doctor?

Month's	January	Feburary	March	April
Income{Rs}	6000	6000	8000	4000

Answer