NEW
MATHEMATICS

(TEACHER GUIDE)

Class Seven

Chapter 1

SETS

Exercise:1.1

1) Which of the following are sets?

i) The twelve months of a year.

Solution:

➢ Set. Ans

2) The team of cricketers of your school.

Solution:

➢ Set. Ans

3) The beautiful utensils.

Solution:

➢ Not a set. Ans

4) Best books.

Solution:

➢ Not a set. Ans

5) Prime numbers.

Solution:

➢ Set. Ans

2) Which of the following are sets?

i) A = { a, b, c }

➢ Set. Ans

ii) E = { Beautiful birds }

➢ Not a set. Ans

iii) B = { Intelligent girls }

➢ Not a set. Ans

iv) F = { 0, 1, 2, -1, -2, 0 }

➢ Set. Ans

v) C = { 1, 2, 3, 4, 5, }

➢ Set. Ans

3) Fill in the following blanks write ∈ or ∉ to make a true statement.

i) $12 \in \{2, 4, 6, 8\}$

ii) $12 \in \{3, 6, 9, 12, 15\}$

iii) $-2 \in \{-1, -2, -3, -4\}$

iv) $8 \notin \{1, 3, 5, 9, 11\}$

v) $a \notin \{x, y, z\}$

4) If A = {1,2,3,4} and B= {3,4,5,6} then state which of the following are true:

i) •	4 E A True. Ans	ii) •	S E A True. Ans
iii) •	S E B False. Ans	iv) •	6 E A True Ans

5) Which of the following statesments are true and which are false.

i) The order of elements of a set does not metter.

➢ True. Ans

ii) The number any sets are of the same kind.

➢ True. Ans

iii) An object can be included in a set repeatedly.

➢ False. Ans

iv) Elements of a set must well-defined and distinct.

➢ True. Ans

v) Any collection of objects is called a set.

➢ False. Ans

Exercise: 1.2

1) Write the following sets in tabular form.

i) A = Set of first eight letters of the English alphabet.

➢ A = { a, b, c, d, e, f, g, h }. Ans

ii) B = Set of frist five positive prime numbers.

➢ B = { 2, 3, 5, 7, 11 }. Ans

iii) C = Set of integers than -5 and less than 3.

➢ C = { -4, -3, -2, -1, 0, 1, 2 }. Ans

iv) D = Set of divisors of 48.

➢ D = {1, 2, 3, 4, 5, 6, 7, 8, 12, 24, 48 }. Ans

v) E = Set of multiples of 3.

➢ E = {3, 6, 9, 12….. }. Ans

2) Write the following sets in descriptive form.

1) A = { 1, 2, 3, 4, 5 }

➢ A={Set of first five natural numbers}Ans

2) D= { 2, 4. 6, 8, 10}

➢ D={Set of first five positive even numbers} Ans

3) E = { 2, 3, 5, 7, 11}

➢ D={Set of first five positive prime numbers} Ans

4) H= { a, e, i, o, u}

➢ H={Set of vowels of English alphabets } Ans

5) J = { 1,2,3…..}

➢ J={Set of natural numbers } Ans

3) Which of the following sets have a finite or infinite number of elements.

1) A = { 8, 16, 24, 32…….}

- Infinite. Ans

2) B = { - 10, -8, -6 -4 -2}

- Finite. Ans

3) C = { 9, 12, 15, 18, 21, 24, 27 }

- Finite. Ans

4) W = { 0, 1, 2, 3 ….}

- Infinite. Ans

5) X = { ….., -4, -3, -0, 1, 2, 3, 4…..}

- Infinite Ans

4) Which of the following are empty sets:

1) The set of names of all these children who are the at the same time students of class VI and class VII

- Empty Set. Ans

2) The set of even numbers which are also even.

- Empty Set. Ans

3) The set of prime numbers which are also even.

- No Empty Set. Ans

4) The set of such composite numbers which are also odd

- No Empty Set. Ans

5) The set such years which have 13 months.

- Empty Set. Ans

Exercise 1.3

Find the union and intersection of the following pairs of set.

1) A = { 4, 5, 6 } and B = { 4, 6, 8, 10 }

Solution:

- AUB = { 4, 5, 6, 8, 10}, A∩B { 4, 6) Ans

2) A = { 0, 1, 2,3, 4 } and B = { 2, 4, 6, 8 }

- Solution
  AUB = {0, 1, 2, 3,4 6, 8}, A∩B { 2, 4) Ans

3) A { 1,3, 5, 9, 11} and B = { 1, 3, 5, 7, 11}

Solution:

- AUB = { 1, 3, 5, 7, 9 11}, A∩B {1,3, 5,11}Ans

4) A = { a, b, c, d, e } and B = { a, e, i, o, u }

Solution:

- AUB={A,b, c, d, e, I, o, u}, A∩B {a,e} Ans

5) A = { Sunday, Monday, Tuesday, Wednesday, thurday, Friday, saturdary}

Solution:

- AUB={ Monday, Tuedsay, Wednesday, Thurday, Friday, Saturday, Sunday}
  A∩B = { Wednesday, Thurday}. Ans

6) A = { set of first eight multiples of t and B = set of first six multiples of 3.

Solution:

- AUB = { 2, 3, 4, 6, 8, 9, 10, 12, 15, 16, 18}
  A∩B = { 6, 12 }. Ans

7) A = { Set of first five positive even numbers} and B= { set of first five natural numbers}

Solution:

- AUB = {1,2,3, 4,5,6,7,8,10} A∩B = { 2,4) Ans

8) A = { Set of first five prime numbers} and B = { Set of first ten natural numbers.

Solution:

- AUB = { 1,2,3,4,5,6,7,8,9,10,11}
  A∩B = { 2,3,5,7} Ans

9) If A = { 1,2,3,4,5,6,7,8}, B= { 1,3,4,7} and C= { 2,4,6,8}

The find the following sets:

1) AUB
Solution
{ 1,2,3,4,5,6,7,8}
Ans

2) AUB
Solution
{7,2,3,4,5,6,7,8}
Ans

3) BUC
Solution
{ 1,2,3,4,5,6,7,8}
Ans

4) BUA
Solution
{ 1,2,3,4,5,6,7,8}
Ans

5) CUA
Solution
{ 1,2,3,4,5,6,7,8}
Ans

6) A∩B
Solution
{ 1, 3, 5, 7 }
Ans

7) A∩C
Solution
{ 2, 4, 6, 8}
Ans

8) B∩C
Solution
∅
Ans

9) B∩A
Solution
{ 1, 3, 5, 7}
Ans

10) C∩ A
Solution
{ 2, 4, 6, 8 }
Ans

Q.10: If A = { 2, 3, 6, 8 } and B = { a, b, c, d }, then verify.

i) AUB = BUA ii) A∩B = B∩A

i) AUB = BUA

Solution:

Take LHS

AUB = { 2, 3, 6, 8 } U { a, b, c, d }

AUB = { 2, 3, 6, 8, a, b, c, d }

Take RHS

BUA = { a, b, c, d }U { 2, 3, 6, 8 }

BUA = { 2, 3, 6, 8, a, b, c, d }

Hence proved AUB BUA.

ii) A∩B = B∩A

Solution:

Take LHS

A∩B = { 2, 3, 6, 8 } ∩{ a, b, c, d }

A∩B= { ∅ }

Take RHS

B∩A = { a, b, c, d }∩{ 2, 3, 6, 8 }

B∩A ={ ∅ }

Hence proved

A∩B = B∩A

Chapter 2

THE SYSTEM OF RATIONAL NUMBERS

Exercise 2.1

And its Evaluation

1) Find the rational number.

Solution:

Any number of the form $\frac{p}{q}$ is a rational number. Ans.

2) Which of the following are rational numbers?

Solution:

Are all rational numbers Ans

3) Classify the following as positive or negative rational numbers.

1) $\frac{3}{5}$
Positive
Ans

2) $\frac{-6}{-7}$
Positive
Ans

3) $-\frac{-3}{13}$
Positive
Ans

4) $\frac{5}{-6}$
Negative
Ans

5) $-(\frac{-7}{-9})$
Negative
Ans

6) $(\frac{8}{-15})$
Positive
Ans

7) $\frac{6}{13}$
Negative
Ans

8) $\frac{89}{-11}$
Negative
Ans

9) $\frac{-12}{17}$
Negative
Ans

10) $\frac{-4}{5}$
Negative
Ans

4) Write down the first five negative integers as rational numbers.
$\frac{-1}{1}$, $\frac{-2}{1}$, $\frac{-3}{1}$, $\frac{-4}{1}$, and $\frac{-5}{1}$ Ans

5) Write down the positive integers blw 19 and 25 as rational numbers.

Solution:
$\frac{20}{1}$, $\frac{21}{1}$, $\frac{22}{1}$, $\frac{23}{1}$, $\frac{24}{1}$ Ans

6) Express $\frac{3}{6}$, $\frac{-10}{15}$, $\frac{-75}{125}$, and $\frac{-18}{63}$ in standard form.

Solution:
$\frac{1}{2}$, $\frac{-2}{3}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{-2}{7}$ Ans

7) write down the opposites of following rational.
Numbers. $\frac{3}{7}$, $-5\frac{1}{2}$, 6.2, $\frac{-5}{-6}$, $\frac{12}{-17}$

Solution:

$\frac{-3}{7}$, -5 $\frac{-2}{1}$, 6.2, $\frac{-5}{6}$, $\frac{12}{17}$ Ans

8) Which of the following statements are true?

1) Every natural number is the rational number.

⇒ T Ans

2) 0 is not a rational number.

F Ans

3) Fractions are not rational number.

⇒ F Ans

4) $\frac{2}{3}$, $\frac{+2}{+3}$, $\frac{-2}{-3}$ are all one and the same rational number.

⇒ T Ans

5) Every rational number can be represented with a positive denominator

⇒ F Ans

6) The rational number $\frac{3}{-10}$ is in standard form.

⇒ F Ans

7) $\frac{3}{0}$ is a rational number

⇒ F Ans

8) Every integers can be represented as a rational number.

⇒ T Ans

Exercise 2.2

1) Given below are pairs of rational numbers. Pick out the equal pairs.

1) $\frac{-15}{-20}, \frac{-16}{-24}$

Solution:

⇒ Not equal Pairs.

Ans

2) $\frac{16}{-20}, \frac{20}{-25}$

Solution:

⇒ Equal pairs.

Ans

3) $\frac{-7}{21}, \frac{-6}{13}$

Solution:

⇒ Not equal Pair.

Ans

4) $\frac{-8}{-20}, \frac{6}{15}$

Solution:

⇒ Equal pairs.

Ans

5) $\frac{-7}{15}, \frac{-6}{13}$

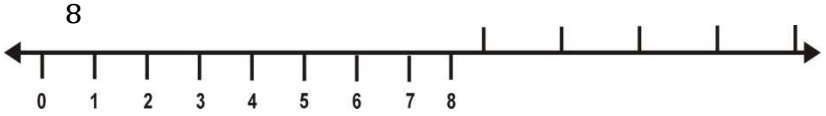
Solution:

⇒ Not equal Pairs.

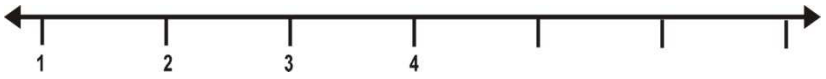
Ans

2) Represent the following numbers on a number – line.

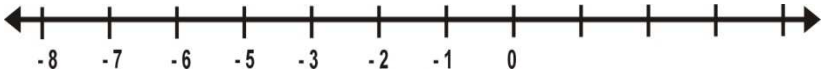
1) $\frac{5}{8}$



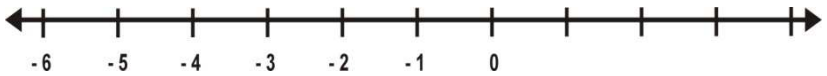
2) $\frac{3}{4}$



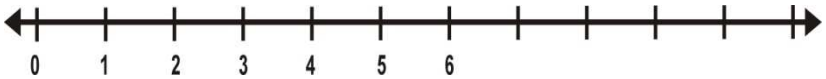
3) $\frac{3}{8}$



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



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



Q.3: State whether the following statements are true or false.

i) Rational number $\frac{2}{3}$ and $\frac{3}{3}$ represented the same integer 1. T ☐

ii) Rational numbers $\frac{0}{3}$ lies to right of 0. F ☐

iii) Rational numbers $\frac{-2}{5}$ and $\frac{2}{5}$ are equidistant from 0 but on apposite sides of it. T ☐

iv) Rational numbers $\frac{-3}{3}$ and $\frac{-4}{4}$ represent same integer 1. T ☐

v) Rational numbers $\frac{4}{2}$ and $\frac{6}{3}$ do not represent the same integer. F ☐

Exercise 2.3

1) Arrange the rational number $\frac{-3}{4}$, $\frac{4}{-5}$, $\frac{-3}{2}$,

$\frac{2}{-3}$ and 0 in the ascending order.

Solution:

$\Rightarrow$ $\frac{-3}{2}, \frac{4}{5}, \frac{-3}{4}, \frac{2}{-3}, 0$ Ans

2) Arrange the rational numbers $\frac{3}{4}, \frac{-4}{-5}, \frac{-3}{2}$ $\frac{-2}{3}$ and 0 is the ascending order.

Solution:

$\Rightarrow$ $\frac{2}{3}, \frac{-4}{-5}, \frac{3}{4}, \frac{-3}{2}, 0$ Ans

3) Write following interges as rational numbers 0, -3, 12, 25, -100.

Solution:

$\Rightarrow$ $\frac{0}{1}, \frac{-3}{1}, \frac{12}{1}, \frac{25}{1}$ $\frac{100}{1}$ Ans

4) Write the rational numbers equal to $\frac{4}{5}$ Whose denominators are 12,2o and 32.

Solution:

$\Rightarrow$ $\frac{12}{15}, \frac{20}{25}, \frac{32}{40}$ Ans

5) Write three rational numbers equal of $\frac{60}{90}$ Whose whose demoninators are 30,15, and 3repectively.

Solution:

$\Rightarrow$ $\frac{20}{30}, \frac{10}{25}, \frac{32}{40}$ Ans

6) List five rational numbers which are not fraction.

Solution:

⇒ 0, 1, 2, 3, 4 Ans

7) Write the following rational numbers in standard form $\frac{-15}{-25}, \frac{16}{-72}, \frac{-12}{15}\ \frac{3}{-4}\ \frac{21}{-14}$.

Solution:

⇒ 0, $\frac{1}{2}, \frac{1}{2}$ Ans

8) Find three rational numbers blw -1 and 1

⇒ $\frac{3}{5}, \frac{-2}{9}, \frac{-4}{5}, \frac{-3}{4}, \frac{-3}{2}$ Ans

Exercise 2.4

1) Find the absolute value of:

1) 21

Solution:

⇒ 21. Ans

2) –15

Solution:

⇒ 15 Ans

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

Solution:

⇒ $\frac{1}{10}$ Ans

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

Solution:

⇒ $\frac{2}{7}$ Ans

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

Solution:

⇒ $\frac{3}{5}$ Ans

6) $\frac{-20}{33}$

Solution:

⇒ $\frac{20}{33}$ Ans

7) $\frac{-11}{-21}$

Solution:

⇒ $\frac{11}{21}$ Ans

8) $\frac{-34}{-51}$

Solution:

⇒ $\frac{34}{51}$ Ans

2) Verify the property /*x* / +y / ≤ / *x* / y / for the following value of *x* end y.

1) $\frac{-3}{7}$, $\frac{1}{2}$

Solution:

⇒ / *x* + y / = / $-\frac{3}{4}$ / + $\frac{1}{2}$ / = $-\frac{1}{4}$ / = $-\frac{1}{4}$

/*x* / +/ y / = / $-\frac{3}{4}$ / +/ $\frac{1}{2}$ / = $\frac{3}{4}+\frac{1}{2}=\frac{5}{4}$

Since $\frac{1}{4} \leq \frac{5}{4}$, the inequality holes Ans

2) $\frac{2}{5}$, $\frac{1}{3}$

Solution:

⇒ / *x* + y / = / $\frac{2}{5}$ + $\frac{1}{3}$ / = $\frac{11}{15}$ / = $\frac{11}{15}$

/ *x* / + / y / = / $\frac{2}{5}$ / +/ $\frac{1}{3}$ / = $\frac{2}{5}+\frac{1}{3}=\frac{11}{15}$

Since $\frac{11}{15} \leq \frac{11}{15}$, the inequality holes Ans

3) $\frac{1}{8}$, $\frac{-3}{7}$

Solution:

⇒ / *x* + y / = / $\frac{1}{8}$ − $\frac{3}{7}$ / = / $-\frac{17}{56}$ / = $\frac{17}{56}$

/ *x* / + / y / = / $\frac{1}{8}$ − $\frac{3}{7}$ / = / $-\frac{3}{7}$ / = $\frac{1}{8}+\frac{3}{7}=\frac{31}{56}$

Since $\frac{17}{56} \leq \frac{31}{56}$, the inequality holes Ans

4) $\frac{-5}{-13}$

Solution:

$\Rightarrow$ $/ x + y / = / -\frac{2}{3} - \frac{1}{3} / = / - 1 / = 1$

$/ x / + / y / = / -\frac{3}{3} / + / -\frac{1}{3} / = \frac{2}{3} + \frac{1}{3} 1$ Ans

3) verify the properity $/ x / = / - x /$ for the following values of. x and y.

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

Solution:

$x = \frac{3}{7}$

$/ x / = / \frac{3}{7} / = \frac{3}{7}$

$/ - x / = / -\frac{3}{7} / \frac{3}{7}$. equality holes. Ans

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

Solution:

$\Rightarrow$ $x \frac{-1}{11}$

$/ x / = / -\frac{1}{11} / = \frac{1}{11}$

$/ - x / = / \frac{1}{11} / = \frac{1}{11}$ = the equality hole. Ans

3) $\frac{7}{-15}$

Solution:

$\Rightarrow \quad x = \frac{7}{15}$

$/ x / = / \frac{7}{15} / = \frac{7}{15}$

$/- x / = / \frac{-7}{-15} / = \frac{7}{15}$ = the equality hole. Ans

4) $\frac{-5}{-13}$

Solution:

$x = \frac{-5}{-13}$

$/ x / = / \frac{5}{13} / = \frac{5}{13}$

$/- x / = / \frac{-5}{13} / = \frac{5}{13}$ = the equality hole. Ans

Chapter 3

SQUARE ROOT

Exercise 3.1

Q.1 Find the square roots of the following.

1) 196

Soltuion:

2	196
2	98
7	49
7	7
	1

$= \sqrt{196}$

$= \sqrt{2 \times 2} \times \sqrt{7 \times 7}$

$= 2 \times 7$

$= 14$ Ans

2) 625

Soltuion:

5	625
5	125
5	25
5	5
	1

$= \sqrt{625}$

$= \sqrt{5 \times 5} \times \sqrt{5 \times 5}$

$= 5 \times 5$

$= 25$ Ans

3) 289

Soltuion:

17	289
17	17
	1

$= \sqrt{289}$

$= \sqrt{17 \times 17}$

$= 17$ Ans

4) 841

Soltuion:

29	841
29	29
	1

$= \sqrt{841}$

$= \sqrt{29 \times 29}$

$= 29$ Ans

5) 1521

Soltuion:

3	1521
3	507
13	169
13	13
	1

$= \sqrt{1521}$

$= \sqrt{3 \text{ x}3 \text{ x } 13 \text{ x } 13}$

$= 3 \text{ x } 13$

$= 39$ Ans

6) 3025

Soltuion:

5	3025
5	605
11	121
11	11
	1

$= \sqrt{3025}$

$= \sqrt{5 \text{ x}5 \text{ x } 11 \text{ x } 11}$

$= 5 \text{ x } 11$

$= 55$ Ans

7) 1600

Soltuion:

2	1600
2	800
2	400
2	200
2	100
2	50
5	25
5	5
	1

$= \sqrt{1600}$

$= \sqrt{2\text{x}2 \text{ x } 2\text{x}2 \text{ x } 2\text{x}2 \;\; 5 \text{ x } 5}$

$= 2 \text{ x } 2 \text{ x } 2 \text{ x } 5$

$= 40$ Ans

8) 4225

Soltuion:

5	4225
5	845
13	169
13	13
	1

$= \sqrt{4225}$

$= \sqrt{5 \text{ x}5 \text{ x } 13 \text{ x } 13}$

$= 5 \text{ x } 13$

$= 65$ Ans

9) 4900

Soltuion:

7	4900
7	700
2	100
2	50
5	25
5	5
	1

$= \sqrt{4900}$

$= \sqrt{7x7 \text{ x } 2x2 \text{ x } 5 \text{ x } 5}$

$= 7 \text{ x } 2 \text{ x } 5$

$= 70$ Ans

10) 2916

Soltuion:

2	2916
2	1458
3	729
3	243
3	81
3	27
3	9
3	3
	1

$= \sqrt{2916}$

$= \sqrt{2x2 \text{ x } 3x3 \text{ x } 3x3 \text{ x } 3}$

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

$= 54$ Ans

11) $2\frac{4}{16}$

Soltuion:

$\frac{36}{16}$

2	36
2	18
3	9
3	3
	1

5	4225
5	845
13	169
13	13
	1

$= \sqrt{36}$

16

$= \sqrt{2x2 \text{ x } 3 \text{ x } 3}$

$= \frac{2 \text{ x } 3}{2 \text{ x } 2}$ $= \frac{6}{4}$ Ans

12) $\frac{484}{169}$

Soltuion:

2	484
2	242
11	121
11	11
	1

13	169
13	13
	1

$= \sqrt{\frac{484}{169}}$ $= \sqrt{\frac{2x2 \times 11 \times 11}{13 \times 13}}$ $= \frac{2 \times 11}{13}$ $= \frac{22}{13}$ Ans

13) 6724

Soltuion:

2	1521
2	3362
41	1681
41	41
	1

$= \sqrt{6724}$

$= \sqrt{2 \text{ x2 } \times 41 \times 41}$

$= 2 \times 41$

$= 82$ Ans

14) 7744

Soltuion:

2	7744
2	3872
2	1936
2	968
2	484
2	242
11	121
11	11
	1

$= \sqrt{7744}$

$= \sqrt{2x2 \times 2x2 \times 2x2 \times 11 \times 11}$

$= 2 \times 2 \times 2 \times 11$

$= 88$ Ans

15) 9409

Soltuion:

97	9409
97	97
	1

$= \sqrt{9409}$

$= \sqrt{97 \times 97}$

= 97 Ans

Exercise 3.2

Q.1 In a party 625 chairs were arranged in such a way that there were as many chairs in each row as the number of rows. Find the number of chairs in each row.

Solution:

5	625
5	125
5	25
5	5
	1

$= \sqrt{529}$

$= \sqrt{\underline{5 \times 5} \times \underline{5 \times 5}}$

= 5 x 5 = 25 Ans

Q.2 A farmer planted 529 trees in a plot such that there were as many trees in each row as the number of rows. Find the number of trees in each row.

Solution:

23	529
23	23
	1

$= \sqrt{529}$

$= \sqrt{23 \times 23}$

$= 23$ Ans

Q.3 A gardener wishes to keep 676 flower-pots at equal distance on a square plot How many pots should he keep in each row?

Solution:

2	676
2	338
13	169
13	13
	1

$= \sqrt{676}$

$= \sqrt{2 \times 2 \times 13 \times 13}$

$= 2 \times 13 \quad = 26$ Ans

Q.4 Students of a school contributed as many paisas in Red cross fund, as the number of studens present.If total contribution was Rs. 2500.Find the number of students present and amount contributed by each.

Solution:

2	2500
2	1250
5	625
5	125
5	25
5	5
	1

$= \sqrt{2500}$

$= \sqrt{2x2 \text{ x } 5 \text{ x } 5 \text{ x } 5 \text{ x } 5}$

$= 2 \text{ x } 5 \text{ x } 5 \qquad = 50$ Ans

Q.5 Some girsl plucked as many flowers each as total number of them. If the flower 529 find the number of girsl.

23	529
23	23
	1

$= \sqrt{529}$

$= \sqrt{23 \text{ x } 23}$

$= 23$ Ans

Q.6 Area of square field is 46656 sqare feet. Find the length of its sides.

Solution:

2	46656
2	23328
2	11664
2	5832
2	2916
2	1458
3	729
3	243
3	81
3	27
3	9
3	3
	1

$= \sqrt{46656}$

$= \sqrt{2x2 \text{ x } 2x2\ 2x2\ 3x3\ 3x3\ 3x3}$

$= 2 \text{ x } 2 \text{ x } 2 \text{ x } 2 \text{ x } 3 \text{ x } 3 \text{ x } 3 = 216$ Ans

Q.7 A rectangular field had its length twice its breadth. If its area is 22050 saqare feet.Find its length and breath.

First divide the 22050 by 2 –

Then, $22050 \div 2 = 11025$

$= \sqrt{11025}$ $== \sqrt{3x3 \text{ x } 5x5\ 7x7}$

$= 3 \text{ x } 4 \text{ x } 7 = 105.$

If the width is 105 feet. Since the length is doube than width. Then mulitiply 105 by 2.

105 x 2

= 210

The length of rectangular field is 210 feet.

Q.8 A P.T teacher wished to arranged his students to form a square with 29 students in each row and 22 students were left over. Find the total number of students.

Solution:

29 x 29

= 841

Now Add 22 in 841

$$\begin{array}{r} 841 \\ +22 \\ \hline 863 \end{array}$$

the total numbers of students = 863 Ans

Q.9 A drill master arranged of students to form a square with 22 students in each row. Was short of 14 students. Find the number of students.

Solution:

= 22 x 22

= 484

Now subtract 14 from 484

$$\begin{array}{r} 484 \\ -14 \\ \hline 470 \end{array}$$

The number of students = 470 Ans

Q.10 An army officer ordered his group of 2025 soldiers to form a square eand two places were left vacant. How many soldiers stood in each row?

Solution:

3	2025
3	675
3	225
3	75
5	25
5	5
	1

$= \sqrt{2025}$

$= \sqrt{3x3 \text{ x } 3 \text{ x } 3 \text{ x } 5 \text{ x } 5}$

$= 3 \text{ x } 3 \text{ x } 5 \qquad = 45$ Ans

Exercise 3.3

1) Find the value of each of the following.

1) $\sqrt{25} - \sqrt{9}$

$\sqrt{25} - \sqrt{9}$

Solution:

$\sqrt{25} = 5, \sqrt{9} = 3$

$\frac{5-3}{5+3} = \frac{2}{8} = \frac{1}{4}$ Answer

2) $\frac{1}{\sqrt{30}} + \frac{1}{\sqrt{9}}$

$\Rightarrow \quad \sqrt{36} \quad 6, \sqrt{9} = 3$

$\frac{1}{6} + \frac{1}{3} + \frac{1}{0} + \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$ Ans

3) $(\sqrt{169} - 4)^2$

Solution:

$\Rightarrow \quad \sqrt{169} = 13$

$(13 - 4)^2 = 9^2 = 81$ Ans

4) $3\,(\sqrt{36} - 2)^2$

Solution:

$\Rightarrow \quad \sqrt{36} = 6$

$3\,(6 - 2)^2 = 3\,(4)^2 = 3\,(16) = 48$ Ans

5) $\sqrt{5\frac{1}{16}} - \sqrt{256} + \sqrt{12\frac{1}{4}}$

Solution:

$\sqrt{\frac{1}{16}} = \frac{1}{4}$, $\sqrt{2.56} = 1.6$

$\sqrt{12\frac{-1}{4}} = \sqrt{\frac{47}{4}} = \sqrt{\frac{47}{2}}$

$5\,(\frac{1}{4}) - 1.6 + \sqrt{\frac{47}{2}} = 1.25 - 1.6 + \sqrt{\frac{47}{2}}$

$= 1.25 - 1.6 + 3{,}416 = 2.066$ Ans

6) $(\sqrt{81-3})^2$

Solution:

$\Rightarrow \quad \sqrt{81} = 9$

$(9-3)^2 = (6)^2 = 36$ Ans

7) $(2\frac{2}{5})^2 \times (\frac{5}{6})^2 - \sqrt{4}$

Solution:

$\Rightarrow \quad 2\frac{2}{5} = \frac{12}{5}$

$(\frac{12}{5})^2 \times (\frac{5}{6})^2 \ 2 = \frac{144}{25} \times \frac{25}{36} - 2 = 4 - 2 = 2$ Ans

8) $3(\sqrt{36}) + 2((\sqrt{36})$

Solution:

$\Rightarrow \quad \sqrt{36} = 6$

$3(6) + 2(6) = 18 + 12 = 30$ Ans

Chapter 4

PERCENTAGE

Exercise 4.1

Find profit or loss percent if:

1) C.P = Rs. 250 , S.P = Rs. 300

Solution:

⇒ S.P – C.P = 300 – 250 = Rs. 50

Profit percentage = $\frac{50}{250}$ x 100 = 20% Ans

2) C.P = Rs.500 , S.P = Rs. 550

Solution:

⇒ S.P – C.P = 550 – 500 = Rs. 50

Profit percentage = $\frac{50}{500}$ x 100 = 10% Ans

3) C.P = Rs.500 , S.P = Rs.450

Solution:

⇒ S.P – C.P = 500 – 450 = Rs. 50

Profit percentage = $\frac{50}{500}$ x 100 = 10% Ans

4) C.P = Rs.1500 , S.P = Rs. 1200

Solution:

⇒ S.P – C.P = 1500 – 1200 = Rs. 300

Loss percentage = $\frac{300}{1500}$ x 100 = 20% Ans

5) C.P = Rs. 400 , S.P = Rs. 390

Solution:

⇒ Loss C.P – S.P = 400 – 390 = Rs. 10

Loss percentage = $\frac{10}{400}$ x 100 = 2.5% Ans

6) C.P = Rs. 1150 , S.P = Rs. 1380

Solution:

⇒ S.P – C.P = 1380 – 1150 = Rs. 230

Profit percentage = $\frac{230}{1150}$ x 100 = 20% Ans

7) C.P = Rs. 550 , S.P = Rs. 473

Solution:

⇒ S.P – C.P = 550 – 473 = Rs. 77

Loss percentage = $\frac{77}{550}$ x 100 = 14% Ans

8) If the cost price of a shirt is Rs. 400 and its sale price is Rs. 444, find profit pecent.

⇒ C. S Rs = 444 – Rs. 400 = Rs.44

$\frac{44}{400}$ x 100 = 11% Ans

9 If the cost price of a book is Rs. 300 and the selling price is Rs. 270, find loss percent.

Solution:

⇒ C. S = Rs 300 – S.P = Rs = 270 = Rs = 30

$\frac{30}{300}$ x 100 = 10% Ans

10) Aziz khan bought 60 pencils at the rate of Rs. 30 per dozen and sold them for Rs.33 per dozen. Find his gain or loss percent.

Solution:

⇒ 30 / 12 = Rs. 2.50

R. 5.2.50, Rs 150

$\frac{33}{12}$ = 2.75

Total selling price = 60 pencils = 2.75, pencil = 165.

Rs. 165 – Rs.150 = Rs.15

$\frac{15}{150}$ x 100 = 10% Ans

Exercise 4.2

1) find the selling price an article which was bought for Rs. 325 and sold at the profit of 20%

Solution:

⇒ 12% = 0.12 x 325 = 39

325 + 39 = 364 Ans

2) Saif bought at ratio for Rs.1900 and sold it at a loss of 50%.find the selling price of the ratio.

Solution:

⇒ 15% = 0.15 x 1900 = 285

1900 – 285 = 1615 Ans

3) A chair bought for Rs.480 is sold at a rofit of 28% find the selling price of chair

Solution:

⇒ 28% = 0.28 x 480 = 134.4
480 + 134.4 = 6.14.4 Ans

4) Asif khan was bought a goat for Rs.2300 and sold it to Ali on 10% loss. How much ali spend on the goat?

Solution:

⇒ 10% = 0.10 x 2300 = 230
2300 – 230 = 2070 Ans

5) A book sells bought 5 dozen of exercise books at Rs.40 per dozen.How shoul the sell them to gain 10%.

Solution:

⇒ 5 x 40 = 200, 10% = 0.10 x 200 = 20
200 + 20 = 220 Ans

6) Find the selling price of house which was purchased for Rs. 100000 and sold at again of 10%?

Solution:

⇒ 10% = 0.10 x 100000 = 10000
100000 + 10000 = 110000 Ans

7) An article is sold for Rs. 720 at a profit of 20% find its cost price.

Solution:

$\Rightarrow$ $720 = x + 0.20x$, $720 = 1.20\ x$

$x = \frac{720}{1.20} = 600$ Ans

8) Rahid sold a goat for Rs. 1200 at 20% profit find the cost price of the goat?

Solution:

$\Rightarrow$ $1200 = x + 0.20\ x$, $1200 = 1.20\ x$

$x = \frac{1200}{1.20} = 600$ Ans

9) What is the cost price of an article which when sold for Rs. 400, a loss of 20% accurs?

Solution:

$\Rightarrow$ $400 = x - 0.20\ x$, $400 - 0.80\ x$

$x = \frac{400}{0.80} = 500$ Ans

10) A profit of 10% is made by selling a bicycle for Rs. 600. Find its cost price.

Solution:

$\Rightarrow$ $1.10 \times CP = 660$

$CP = \frac{660}{1.10} = 600$ Ans

11) A leader made a profit of 30% by selling on article for Rs.104. How much did it cost him?

Solution:

⇒ 30% = 1.30 , 1.30 x CP = 104

$$CP = \frac{104}{1.30} = 80$$ Ans

Exercise 4.3

1) Find the S.P of the following.

1) M.P = Rs. 210 , Discount = 12%

Solution:

⇒ $S.P = 210 \times (1\frac{-12}{100}) = 210 \times 0.88 = 184.8$

Ans

2) M.P = Rs. 2010 , Discount = 8%

Solution:

⇒ $S.P = 2010 \times (1\frac{-8}{100}) = 2010 \times 0.92 = 1849.2$

Ans

3) M.P Rs. 15240 , Discount = 9%

Solution:

⇒ $S.P = 15240 \times (1\frac{-9}{100}) = 15240 \times 0.91 = 13874.4$

Ans

4) M.P = Rs. 640 , Disount = $12\frac{1}{2}$ %

Solution:

⇒ $S.P = 640 \times (1\frac{25}{200}) = 640 \times 0.71 = 480$

Ans

2) Find the C.P if.

1) S.P Rs. 270 , Discount = 10%

Solution:

$\Rightarrow$ C.P = $\frac{270}{1-\frac{10}{100}}$ = $\frac{270}{0.9}$ = 300 Ans

2) S.P Rs.1275 ,Discount = 15%

Solution:

$\Rightarrow$ C.P = $\frac{1275}{1-\frac{15}{100}}$ = $\frac{1275}{0.85}$ = 1500 Ans

3) SP. Rs. 11340 ,Discount = $5\ \frac{1}{2}$ %

Solution:

$\Rightarrow$ C.P = $\frac{11340}{1-\frac{5.5}{100}}$ = $\frac{11340}{0.945}$ = 12000 Ans

4) S.P Rs. 1275 ,Discount = 4%

Solution:

$\Rightarrow$ C.P = $\frac{1275}{1-\frac{4}{100}}$ = $\frac{1275}{0.96}$ = 1328.125 Ans

3) Find the discount percent if.

1) M.P = Rs. 300, S.P = Rs. 275

Solution:

$\Rightarrow$ Discount% = $\frac{300-279}{300}$ x100 = $\frac{21}{300}$ x 100 = 7%

Ans

2) M.P Rs.760 , SP = Rs.722

Solution:

$\Rightarrow$Discount% = $\frac{760-722}{760}$ x100 = $\frac{38}{760}$ x 100 = 5%

Ans

3) MP = Rs. 1680, S.P Rs.1512

Solution:

$\Rightarrow$Discount% = $\frac{1680-1512}{1680}$ x100 = $\frac{168}{1680}$ x100 = 10%

Ans

4) MP = Rs. 20100 , S.P = Rs.19497

Solution:

$\Rightarrow$Discount% = $\frac{2100-19497}{20100}$ x100 = $\frac{603}{20100}$ x100= 3%

4) A shopkeeper allows 20% discount on an article and still make a profit of 25% if the article cost Rs. 1720 to the shopkeeper, find its maked price.

Solution:

S.P = 1720 x $\frac{125}{100}$ = 2150 x $\frac{80}{100}$

2150 x $\frac{100}{800}$ = 2687.5 Ans

5) A shopkeeper offers 15% disount on a book E still makes a profit of 10%. What is the cost price of the book if the maked price is Rs.430?

Solution:

$\Rightarrow$ 15% = 0.15 x 430 = Rs.64.50, 430- 64.50 = Rs: 365.50 110% x x = 365.50, 1.10x = 365.50

x = $\frac{365.50}{1.10}$ = Rs. 332.27 Ans

Chapter 5

RATIO AND PROPORTION

Exercise 5.1

1) Find the ratio of the following.

1) 18 meters, 54 meters

Solution:

$\Rightarrow$ $18 : 54 = \frac{18}{54} = 1 : 3$ Ans

2) 16 rupess, 36 rupees

Solution:

$\Rightarrow$ $16 : 36 = \frac{18}{36} = \frac{4}{9}$ Ans

3) 247 years, 60 years

Solution:

$\Rightarrow$ $247 : 60 = \frac{247}{60} = 247 : 60$ Ans

4) 75 kg 35kg

Solution:

$\Rightarrow$ $75 : 35 = \frac{75}{35} = 15 : 07$ Ans

5) 33km 77km

Solution:

$\Rightarrow$ $33 : 77 = \frac{33}{77} = \frac{3}{7}$ Ans

6) 126ml , 250 ml

Solution:

$\Rightarrow$ $125 : 250 = \frac{125}{250} = \frac{1}{2}$ Ans

7) 400 grams, 600 grams.

Solution:

$\Rightarrow$ $400 : 600 = \frac{400}{600} = 2 : 3$ Ans

8) 850 , 900cm.

Solution:

$\Rightarrow$ $850 : 900 = \frac{850}{900} = 17 : 18$ Ans

9) 1050 liters , 1250 liters

Solution:

$\Rightarrow$ $1050 : 1250 = \frac{1050}{1250} = 21 : 25$ Ans

10) 625 sec , 425sec

Solution:

$\Rightarrow$ $625 : 425 = \frac{625}{425} = 25 : 17$ Ans

2) Express the following rations in the simplified form.

1) 55 sec , $2\frac{1}{2}$ minutes.

Solution:

$\Rightarrow$ $\frac{55}{5} : \frac{150}{5} = 11 : 30$ Ans

2) 2 meter , 75cm

Solution:

$\Rightarrow$ $\frac{200}{25} : \frac{75}{25} = 8 : 3$ Ans

3) 2 meter , 75cm

Solution:

$\Rightarrow \quad \frac{200}{25} : \frac{75}{25} = 8 : 3$ Ans

4) 9 inches , 3 feet

Solution:

$\Rightarrow \quad \frac{9}{9} : \frac{36}{9} = 1 : 4$ Ans

5) 1.5 liters , 900 ml

Solution:

$\Rightarrow \quad \frac{1500}{300} : \frac{900}{300} = 5 : 3$ Ans

6) 11 months , 2 years 9 months

Solution:

$\Rightarrow \quad \frac{11}{11} : \frac{33}{11} = 1 : 3$ Ans

7) 75 paisa,2 rupees , 25 paisa

Solution:

$\Rightarrow \quad \frac{75}{75} : \frac{225}{75} = 1 : 3$ Ans

8) 900 meters , 3 km 600

Solution:

$\Rightarrow \quad \frac{900}{900} : \frac{3600}{900} = 1 : 4$ Ans

9) 750 mg , 3 grams

Solution:

$\Rightarrow \quad \frac{750}{750} : \frac{3000}{750} = 1 : 4$ Ans

10) 65 mm , 13 cm

Solution:

⇒ 10 mm : 130 mm, 65 : 130 Ans

Exercise 5.2

1) In a playground there are 22 players and 440 spectors.What is the ratio of the number of players to the number of spectators.

Solution:

⇒ $\frac{22}{440}$, $\frac{22\div 22}{440\div 22} = \frac{1}{20}$ 1 : 20 Ans

2) There are 4900 pages in Mathematics book and 553 pages in urdu book. What is the ratio of the number of pages of Mathematics book to the number of pages of urdu book?

Solution:

⇒ $\frac{4900}{553}$ = 4900 : 553 Ans

3) An aeroplane covered a distane of 750 km. in 2 hours and a train covered a distance of 225 km in 3 hours. Find the ratio between speeds of the aeroplane and train.

Solution:

⇒ $\frac{750}{2}$ = 375 km/ hours

$\frac{225}{3}$ = 75 km / hours

$\frac{375}{75}$ = 5 : 1 Ans

4) Aeroplane can carry 366 passengers. A ship can carry 852 passengers. Find the ratio of pessengers of the the aeroplane to that of the pessengers or degrees?

Solution:

$\Rightarrow \quad \frac{366}{852}, \frac{366 \div 6}{852 \div 6} = \frac{61}{142}$ 61 : 142Ans

1) Find x : y : z when:

Solution:

x	:	y	:	z
3	:	4	:	6
		5	:	6

3 x 5	4 x 5	4 x 6
15	20	24 Ans

2) x : y = 6 : 9 and y : z = 7 : 8

Solution:

x	:	y	:	z
6	:	9		
		7	:	8

6 x 9	9 x 7	7 x 8
14	21	24 Ans

3) x : y = 4 : 5 and y : z = 3 : 8

Solution:

x	:	y	:	z
4	:	5		
		3	:	8

4 x 5	3 x 5	3 x 8
20	15	24 Ans

4) x : y = 7 : 10 and y : z = 2 : 5

Solution:

x	:	y	:	z	
7	:	10			
		2	:	5	
7 x 10		10 x 2		2 x 5	
70		20		10	Ans

5) x : y = 12 : 4 and y : z = 8 : 13

Solution:

x	:	y	:	z	
12	:	4			
		8	:	13	
12 x 4		4 x 8		8 x 13	Ans

6) x : y = 14 : 17 and y : z = 4 : 7

Solution:

x	:	y	:	z	
14	:	17			
		4	:	7	
14 x 17		17 x 4		4 x 7	Ans

2) Find a : b : c : d when:

1) a : b : 2 : 3 , b : c = 3 : 4, c : d = 6 : 7

Solution:

a	:	b	:	c	:	d
2	:	3				
		3	:	4		
				6	:	7
2 x3	:	3 x 3	:	3 x 4		
6	:	9	:	12		

Or	a	:	b	:	c	:	d
	6	:	9	:	12	:	
					6	:	7
	6x6	:	9 x 6	:	12 x 6	:	12 x 7
	36	:	54	:	72	:	84
	Divided by 6						
	36÷6	:	54÷6	:	72÷6	:	84÷6
	6	:	9	:	12	:	14

Answer.

2) a : b = 3 : 4 , b : c = 7 : 8 , c : d = 5 : 6

<u>Solution:</u>

	a	:	b	:	c		
	3	:	4				
			7	:	8		
	3 x 7	:	4 x 7	:	4 x 8		
	21	:	28	:	32		
Or	a	:	b	:	c	:	d
	21	:	28	:	32		
					5	:	6
	21x5	:	28 x5	:	32 x 5	:	32 x 6
	105	:	140	:	160	:	192

Answer.

3) a : b = 5 : 9 , b : c = 7 : 8 , c : d = 5 : 6

<u>Solution:</u>

	a	:	b	:	c		
	5	:	9				
			7	:	8		
	5 x7	:	9 x 7	:	9 x 8		
	35	:	63	:	72		
Or	a	:	b	:	c	:	d

35	:	63	:	72	:		
				5	:	6	
35x5	:	63 x 5	:	72 x 5	:	72 x 6	
175	:	315	:	360	:	432	
						Answer	

4) a : b 7 :10 , b : c = 8 : 11 , c : d = 9 : 13

Solution:

a	:	b	:	c			
7	:	10					
		8	:	11			
7 x8	:	10 x 8	:	10 x 11			
56	:	80	:	110			
Or a	:	b	:	c	:	d	
56	:	80	:	110	:		
				9	:	13	
56x 9	:	80 x 9	:	110 x 9	:	10 x 13	
504	:	720	:	990	:	130	
						Answer	

5) a : b = 8 : 13 , b : c = 4 : 7 , c : d = 6 : 11

Solution:

a	:	b	:	c			
8	:	13					
		4	:	7			
8 x4	:	13 x 4	:	13 x 7			
32	:	52	:	91			
Or a	:	b	:	c	:	d	
32	:	52	:	91	:		
				6	:	11	
32 x6	:	52 x 6	:	91 x 6	:	91 x 11	

192 : 312 : 546 : 1001

Answer

3) fahim has some marbles of green , yellow, blue and red colours. The ratio blw the number green e yellow marbles in 3 : 4, yellow and blue is 5 : 7 and blue and red is 8 : 9, what is the ratio blw the numbers of green and blue marbles.

Solution:

Green : Yellow : Blue

3 : 4

5 : 7

3 x 4 : 4 x 5 : 4 x 7

15 : 20 : 28

Or green : yellow : blue : red

15 : 20 : 28

8 : 9

15 x 8 : 20 x 8 : 28 x 8 : 28 x 9

20 : 160 : 224 : 252

Or 20÷8 : 160 ÷ 8 : 224 ÷ 8 : 252 ÷ 8

15 : 20 : 28 : 31.5

Green = 215

Blue = 28 Answer.

4) Of the runs blw 1st and 2nd tests matches is 9 is to 13.Blw 2nd and 3rd tests matches is 7 is to 8. Find the ratio of the runs blw 1st and the 4th test matches.

Solution:

	1st	:	2nd	:	3rd	
	9	:	13			
			5	:	3	
	9 x 5	:	13 x5	:	13 x3	
	45	:	65	:	39	
Or	1st	:	2nd	:	3rd	: 4th
	45	:	65	:	39	
					7	: 8
	45 x 7	:	65 x 7	: 39 x 7	: 39x 8	
	315	:	455	: 273	: 312	
Or	315÷8	:	455÷7	:273÷7	: 312÷7	
	45	:	65	: 39	: 45	

1st = 45 and 4th = 45 Answer.

Exercise 5.4

1) Which of the following expressions are in proportion.

1) 7 : 21 : : 3 : 9

Solution:

⇒ $\frac{7}{21} = \frac{1}{3}$ and $\frac{3}{9} = \frac{1}{3}$ Proportion Ans

2) 2 : 5 : : 4 : 3

Solution:

⇒ $\frac{2}{5} = 0.4$ and $\frac{4}{3} \approx 1.33$ not Proportion Ans.

3) 3 : 1 : : 48 : 15

Solution:

⇒ $\frac{3}{1} = 3$ and $\frac{48}{15} = \frac{16}{5} = 3.2$ not proportion Ans.

4) 2 : 4 : : 8 : 16

Solution:

$\Rightarrow \quad \frac{2}{4} = \frac{1}{2}$ and $\frac{8}{16} = \frac{1}{2}$ Proportion Ans.

5) 6 : 1 : : 12 : 14

Solution:

$\Rightarrow \quad \frac{6}{1} = 6$ and $\frac{12}{14} = \frac{6}{7} \approx 0.8$ not Proportion Ans.

6) 6 : 8 : : 4 : 5

Solution:

$\Rightarrow \quad \frac{6}{8} = \frac{3}{4} = 0.75$ and $\frac{4}{5} \approx 0.8$ not Proportion Ans.

7) 5 : 8 : : 20 : 32

Solution:

$\Rightarrow \quad \frac{5}{8} = 0.625$ and $\frac{20}{32} = \frac{5}{8}$ 0.625 Proportion Ans.

8) 8 : 7 : : 6 : 9

Solution:

$\Rightarrow \quad \frac{8}{7} \approx 1.14$ and $\frac{6}{9} = \frac{2}{3} \approx 0.67$ not proportion Ans.

9) 13 : 4 : : 5 : 9

Solution:

$\Rightarrow \quad \frac{13}{4} = 3.25$ and $\frac{5}{9} \approx 0.56$ not proportion Ans.

10) 16 : 32 : : 1 : 2

Solution:

⇒ $\frac{16}{32} = \frac{1}{2}$ and $\frac{1}{2} = \frac{1}{2}$ proportion Ans.

11) 200 : 100 : : 400 : 200

Solution:

⇒ $\frac{200}{100} = 2$ and $\frac{400}{200} = 2$ proportion Ans.

12) 31 : 6 : : 124 : 24

Solution:

⇒ $\frac{31}{6} \approx 5.17$ and $\frac{124}{24} = \frac{31}{6} \approx 5.17$ proportion Ans.

2) Find the value of the x in the following proportion.

1) 3 : 7 : : 15% x

Solution:

3 x x = 7 x 15

3 x = 105 , x = $\frac{105}{3}$, x 35 Ans.

2) 15 : 9 : : 10 : x

Solution:

⇒ 15 x x =9 x 10

15 x = 90

$x = \frac{90}{15} = x$ 6 Ans.

3) 6 : 4 : : 12 : x

Solution:

⇒ 6 x x = 4 x 12

$6x = 48$

$x = \frac{48}{6} = x\ 8$ Ans.

4) $8 : 12 :: x : 15$

Solution:

$\Rightarrow$ $8 \times 15 = 12 \times x$

$120 = 12x$

$\frac{120}{12} = x = 10$ Ans.

5) $6 : 8 :: x : 4$

Solution:

$\Rightarrow$ $6 \times 4 = 8 \times x$

$24 = 8x$

$\frac{24}{8} = x = 3$ Ans.

6) $11 : 5 :: x : 20$

Solution:

$\Rightarrow$ $11 \times 20 = 5 \times x$

$220 = 5x$

$\frac{220}{5} = x = 44$ Ans.

7) $7 : x :: 14 : 8$

Solution:

$\Rightarrow$ $7 \times 8 = x \times 14$

$56 = 14\ x$

$\frac{56}{14} = x = 4$ Ans.

8) $9 : x :: 18 : 36$

Solution:

$\Rightarrow$ $324 = 18\ x$

$\frac{324}{18} = x = 18$ Ans.

9) $x : 4 :: 10 : 8$

Solution:

$\Rightarrow$ $x \times 8 = 4 \times 10$

$8\ x = 40$

$x = \frac{40}{8} = x = 5$ Ans.

10) $x : 16 :: 7 : 8$

Solution:

$\Rightarrow$ $x \times 8 = 16 \times 7$

$8\ x = 112$

$x = \frac{112}{8} = x = 14$ Ans.

11) $x : 25 :: 3 : 15$

Solution:

$\Rightarrow$ $x\ 15 = 75$

$x = \frac{75}{15} = x = 5$ Ans.

3) The price of 9 pens is Rs. 90. Find the price of 20 such pens.

Solution:

$\Rightarrow \quad \frac{90}{9} = 10$ Rs

20 x 10 = 200 Rs Ans.

4) The distance of 27 km is represented by 3 cm on a map. How many centimete's long line segment will represent 90 km long road?

Solution:

$\Rightarrow \quad \frac{27}{3} = \frac{90}{x}$

$27\ x = 270$

$x\ \frac{270}{27} = 10$ Ans.

5) An aeroplane covers a distance of 720 kilometers in 4 hours. How much distance would cover in 6 hours?

Solution:

$\Rightarrow \quad \frac{720}{4} = 180$

180 x 6 = 1080 km Ans

6) kishwa buys 2 dozen oranges for Rs. 36. How many dozen orange would she buy for Rs. 108?

Solution:

$\Rightarrow \quad \frac{36}{2} = 18$ Rs.

$108 = \frac{108}{18} = 6$ Ans.

7) 9 men earn Rs: 360. How may men earn Rs: 1000?

Solution:

$\Rightarrow \quad \frac{360}{9} = 40$ Rs.

$\frac{1000}{40} = 25$ mens Ans.

8) 400 men had a food stock too 6 days. How many men would eat the same stock of food in 8 days?

Solution:

6 : 8 : : 400 : x

6 x = 3200

x = $\frac{3200}{6}$ = x = 533.3 Ans.

9) 30 men can do a piece of work in 18 days. If how many days the same work would complete 15 mens?

Solution:

mens	days
30	18
15	x

30 : 15 : : 18 : x

x = $\frac{15 \text{ x } 18}{30} = \frac{270}{30}$

x = 9 days Ans.

10) In a camp 450 men had food for 33 days? If 100 more men arcived, find for how many days would be food be sufficient?

Solution:

Mens	days
450	33
100	x

450 : 100 : : x : 33

$$x = \frac{450 \text{ x } 33}{100} = \frac{14850}{100}$$

450 mens + 100 men = 55 over

$$x = \frac{1480-33}{550} = 27 \text{ days.}$$

Chapter 6

ALGEBRAIC EXPRESSIONS, FUNDAMENTAL OPERATION AND LINEAR EQUATION

Exercise 6.1

a) Find the sum of the following algebraic expressions:

1) $6x + 4x$

Solution:

$\Rightarrow$ $10x$ Ans

2) $8xy + 9xy$

Solution:

$\Rightarrow$ $17xy$ Ans

3) $a^2b + 18a^2b$

Solution:

$\Rightarrow$ $19a^2b$ Ans

4) $7a + 3a + 9a$

Solution:

$\Rightarrow$ $19a$ Ans

5) $a^2c + 8a^2c$

Solution:

$\Rightarrow$ $18a^2c$

Ans

6) $2ab^2c + 6ab^2c + 11ab^2c$

Solution:

$\Rightarrow$ $19ab^2c$

Ans

7) $\frac{2}{5}a^2 + \frac{6}{5}a^2$

Solution:

$\Rightarrow$ $\frac{8}{5}a^2$ Ans

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

Solution:

$\Rightarrow$ $\frac{9}{4}ab$ Ans

9) $\frac{3}{5}y^2 + \frac{8}{15}y^2 + \frac{6}{5}y^2$

Solution:

$\Rightarrow \quad \frac{7}{3} y^2$ Ans

10) $\frac{9}{4} abc + \frac{2}{3} abc + \frac{5}{12} abc$

Solution:

$\Rightarrow \quad \frac{55}{36} abc$ Ans

b) Find the difference of the following algebraic expressions:

1) $6x - 4x$

Solution:

$\Rightarrow \quad 2x$

Ans

2) $8a - a$

Solution:

$\Rightarrow 7a$

Ans

3) $17a^2 - 16a^2$

Solution:

$\Rightarrow \quad a^2$

Ans

4) $9x^3y^2 - 3x^3y^2$

Solution:

$\Rightarrow 6x^3y^2$

Ans

5) $10xy^2 - 9xy^2$

Solution:

$\Rightarrow \quad xy^2$

Ans

6) $21abc - 19abc$

Solution:

$\Rightarrow 2abc$

Ans

7) $14x^2y^2 - 9x^2z^2$

Solution:

$\Rightarrow \quad 5x^2yz^2$

Ans

8) $\frac{8}{5} a - \frac{2}{5} a$

Solution:

$\Rightarrow \quad \frac{6}{5} a$

Ans

9) $\frac{9}{15}\ x^2 - \frac{2}{5}\ x^2$

Solution:

$\Rightarrow \quad \frac{1}{5}\ x^2$ Ans

10) $xy - \frac{3}{4}\ xy^2$

Solution:

$\Rightarrow \quad \frac{1}{4}\ xy^2$ Ans

c) Simplify the following algebraic expression:

1) $7p + 3p - 4p$

Solution:

$\Rightarrow \quad 6p$ Ans

2) $3y^2 - 9y^2 + 12y^2$

Solution:

$\Rightarrow \quad 6y^2$ Ans

3) $2x^2 - 11x^2 + 15x^2$

Solution:

$\Rightarrow \quad 6x^2$ Ans

4) $3a\ 7a - 8a + 3a - 2a$

Solution:

$\Rightarrow \quad 3a$ Ans

5) $y^2 + y^2 + y^2 + y^2$

Solution:

$\Rightarrow \quad 4y^2$ Ans

6 $\frac{5}{3}\ x + \frac{4}{9}\ x + \frac{5}{3}\ x$

Solution:

$\Rightarrow \quad \frac{34}{9}\ x$ Ans

7) $\frac{17}{6}\ a - \frac{1}{2}\ a + \frac{1}{6}\ a$

Solution:

$\Rightarrow \quad \frac{5}{2}\ a$ Ans

8) $20\ xyz - 10\ xyz + 5xyz$

Solution:

$\Rightarrow 15\ xy$ Ans

9) $2a^2\ b^2\ c^2 - 5\ a^2\ b^2\ c^2 + 9\ a^2\ b^2\ c^2 - 8\ c^2\ b^2\ c^2$

Solution:

$\Rightarrow \quad -\ 2a^2\ b^2\ c^2$ Ans

Exercise 6.2

1) Arrange the following algebraic expression in desending and ascending orders with respect to the given variable in each expression.

1) $a^2 + 4a^3 - 3a + 4 + 3a^2$

Solution:

$\Rightarrow$ $4a^3 + 3a^2 + a^2 + 3a + 4$

Descending order

$\Rightarrow$ $4 + 3a + a^2 + 3a^2 + 4a^3$

Ascending order Ans.

2) $4x^6 - 8 + 3x + 7x^2 + 8x^3$

Solution:

$\Rightarrow$ $4x^6 + 8x^3 + 7x^2 + 3x - 8$

Descending order

$\Rightarrow$ $-8 + 3x + 7x^2 + 8a^3 + 4x^6$

Ascending order Ans.

3) $5 - x + 4x^4 - 2x^3 + 3x^2$

Solution:

$\Rightarrow$ $4x^4 - 2x^3 + 3x^2 - x + 5$

Descending order

$\Rightarrow$ $5 - x + 3x^2 - 2x^3 + 4x^4$

Ascending order Ans.

4) $y^7 + 4y^6 - 10 + 3y^5 + 4y^2$

Solution:

$\Rightarrow$ $4y^7 + 4y^6 + 3y^5 + 4y^2$

Descending order

$\Rightarrow$ $-10 + 4y^2 + 3y^5 + 4y^6 + y^7$

Ascending order Ans.

5) $3z^2 + z + 4z^3 - 6z^4$

Solution:

$\Rightarrow$ $-6z^4 + 4z^3 + 3z^2 + z$

Descending order

$\Rightarrow$ $z + 3z^2 + 4z^3 - 6z^4$

Ascending order Ans.

6) $2b^2 - 6b^3 + 7b - 12 + 66^4$

Solution:

$\Rightarrow$ $6b^4 - 6b^3 + 2b^2 + 7b - 12$

Descending order

$\Rightarrow$ $-12 + 7b + 2b^2 - 6b^3 + 6b^4$

Ascending order Ans.

7) $C^3 - C^5 + 2c^6 - 4c - 3c^4 + 5c^2$

Solution:

$\Rightarrow$ $2c^6 - c^5 - 3c^4 + c^3 + 5c^2 - 4c$

Descending order

$\Rightarrow$ $-4c + 5c^2 + c^2 - 3c^4 - c^5 + 2c^6$

Ascending order Ans.

8) $2p - 7p^4 + 8 - p^6 + 6p^3$

Solution:

$\Rightarrow$ $-p^6 - 7p^4 + 6p^3 + 2p^4 + 8$

Descending order

$\Rightarrow$ $8 + 2p + 6p^5 - 7p^4 - p^6$

Ascending order Ans.

9) $q^6 + q^3 + 2q^7 + 4q^2 - 8q$

Solution:

$\Rightarrow$ $2q^7 + q^6 + q^3 + 2q^2 - 8q$

Descending order

$\Rightarrow$ $8q + 4q^2 + q^3 + q^6 + 2q^7$

Ascending order Ans.

10) $x - x^5 + x^2 + 7x^3 + 6 + x^6$

Solution:

$\Rightarrow$ $x^6 - x^5 + 7x^3 + x^2 + x + 6$

Descending order

$\Rightarrow$ $6 + x + x^2 + 7x^3 - x^5 + x^6$

Ascending order Ans.

2) Arrange the following in desceding and ascending orders with respect to variable 'x'.

1) $4x^2y - 3x^5y + 6x^3y^4z + 8xy^5$

Solution:

$\Rightarrow$ $-3x^5y + 6x^3y^4z + 4x^2y + 8xy^5$

Descending order

$\Rightarrow$ $8xy^5 + 4x^2y + 6x^3y + {}^4z - 3x^5y^2$

Ascending order Ans.

2) $7xy^3z^4 + 2x^5y^2z - 4x^3y^7z^5 + 4x^4y^4z^4$

Solution:

$\Rightarrow$ $2x^5y^2z - 4x^4y^4z^4 - 4x^3y^7z^5 + 7xy^3z^4$

Descending order

$\Rightarrow$ $7xy^3z^4 - 4x^3y^7z^5 + 4x^4x^4z^4 + 7xy^3z^4$

Ascending order Ans.

3) $x^3 y^2 z^2 - 6x^6 y^7 z^5 + 2x^5 y^3 - 4x^4 yz^4 + 2x^2 y^4 z^2$

Solution:

$\Rightarrow$ $-6x^6 y^7 z^5 + 2x^3 y^3 - 4x^4 yz^4 + x^3 y^2 z^2$

Descending order

$\Rightarrow$ $2x^2 y^2 z^2 + x^3 y^2 z^2 - 4x^4 yz^4 + 2x^3 y^3 - 6x^6 y^7 z^5$

Ascending order Ans.

4) $x^4 y^7 + 3x y^6 + 2x^2 yz + 4x^3 y^2 z^2 + 5x^5 y^4 z$

Solution:

$\Rightarrow$ $5x^5 y^4 z + x^4 y^7 + 4x^3 y^2 z^2 + 2x^2 yz + 3x y^6$

Descending order

$\Rightarrow$ $3xy^6 + 2x^2 yz + 4x^3 y^2 z^2 + x^4 y^7 + 5x^5 y^4 z$

Ascending order Ans.

5) $21x^6 y^3 z^4 - 7x^7 yz + 3x^2 y^2 z^3 + 7x^3 y - x^4 y^4$

Solution:

$\Rightarrow$ $7xy z + 21x^6 y^3 z^4 + 7x^3 y + 3x^2 y^2 z^3$

Descending order

$\Rightarrow$ $3x^2 y^2 + 7x^3 y - x^4 y^4 + 21x^6 y^3 z^4 - 7x^7 yz$

Ascending order Ans.

6) $3x^4 y^2 + 4x^3 y^3 + 8xy x^4 + 9x^5 y^6$

Solution:

$\Rightarrow$ $9x^5 y^6 + 3x^4 y^2 + 4x^2 y^3 + 8x y^4$

Descending order

$\Rightarrow$ $8x y^4 + 4x^2 y^3 + 3x^4 y^2 + 9x^5 y^6$

Ascending order Ans

7) $10x\,y^{7}z^{2} + 2x^{4}y^{2}z^{2} + 8x^{3}y^{5}z^{3} + 3x^{5}y^{3}z^{2}$

Solution:

$\Rightarrow$ $3x^{5}y^{3}z^{2} + 2x^{4}y^{2}z^{5} + 8x^{3}y^{5}z^{3} - 10x\,y^{7}z^{2}$

Descending order

$\Rightarrow$ $10x\,y^{7}z^{2} + 8x^{3}y^{5}z^{3} + 2x^{4}y^{2}z^{5} + 3x^{5}y^{3}z^{2}$

Ascending order Ans.

8) $2x^{3}y^{2}z^{4} - 3x^{5}yz^{2} + 5x^{2}y^{3} + 7x^{4}y^{4}$

Solution:

$\Rightarrow$ $-3x^{5}yz^{2} + 7x^{4}y^{4} + 2x^{3}y^{2}z^{4} + 5x^{2}y^{3}$

Descending order

$\Rightarrow$ $5x^{2}y^{3} - 2x^{3}y^{2}z^{4} + 7x^{4}y^{4} - 3x^{5}yz^{2}$

Ascending order Ans.

Exercise 6.3

1) Add the following algebraic expression:

1) x , x

Solution:

$\Rightarrow$ $2x$ Ans.

2) x , $2x$,$3x$

Solution:

$\Rightarrow$ $6x$ Ans.

3) $3x^{2}$, $4x^{2}$ $2x^{2}$

Solution:

$\Rightarrow$ $9x^{2}$ Ans.

4) $5a^{2}$, $7a^{2}$

Solution:

$\Rightarrow$ $12a$ Ans.

5) $8xy - 3xy$, $5x\,y$

Solution:

$\Rightarrow$ $10yx$ Ans.

6) $6x\,y^{2}$,$-4x\,y^{2} - xy^{2}$

Solution:

$\Rightarrow$ $x\,y^{2}$ Ans.

7) $\frac{3}{4}$ ab , $\frac{5}{4}$ ab

Solution:

⇒ 2ab Ans.

8) $14b^2$, $-7b^2$,$8b^2$

Solution:

⇒ $15b^2$ Ans.

9) 2abc, – abc, – 9abc

Solution:

⇒ – 8 abc Ans.

10) $\frac{1}{7} x^2 y^2$, $\frac{4}{7} x^2 y^2 \frac{2}{7} x^2 y^2$

Solution:

⇒ $x^2 y^2$ Ans.

2) Find the sum of the following vertical method.

1) $10a^2 + 5b^2 – 8c^2 – 7a^2 – 2b^2 – 4c^2$

Solution:

⇒ $17a^2 + 3b^2 – 12c^2$ Ans.

2) $4x^2 + 2x^2 + 3x$, $5x^3 – 2x^2 – 8x$, $6x^3 + 5x^2 + 10x$

Solution:

⇒ $3x^3 + 5x^2 + 5x$

3) $4p^2 + 3pq + 5q^2$, $7p – 6pq – 2q^2$, $– 3p^2 + 2pq – 3q^2$

Solution:

⇒ $sp^2 + 6pq$ Ans.

4) $30x – 4ab + 6c^2$,$9ax$ $8ab + 14c^2$,$–11ax$, $5ab$, $7c^2$

Solution:

⇒ $a x – ab + 13c^2$ Ans.

5) $a + b\ 3b^2 + c^2$, $a - 2b^2 - c^2$, $2a + 4b^2 + c^2$

Solution:

$\Rightarrow$ $4a + 5b^2 + c^2$ Ans.

6) $2x^4 y^2 + 3z^2 - z, 4x^4 y^2 + 6x^2 - 4z, 5x^4 y^2 + 7z^2 + 5z$

Solution:

$\Rightarrow$ $11x^4 y^2 + 16z^2$ Ans.

7) $\frac{1}{2} a^2 b^2 + \frac{3}{4} c^2, \frac{3}{2} a^2 b^2 - \frac{7}{4} c^2$

Solution:

$\Rightarrow$ $2a^2 b^2 - c^2$ Ans.

8) $6a^2 b^2 - 2c^2 - 8d, 4a^2 b^2 + 4c^2 + 4d$

Solution:

$\Rightarrow$ $10\ a^2 b^2 + 2c^2 - 4d$ Ans.

9) $8p^2 + 7q^2 - 6pq, -7p^2 - 6q^2 + 5pq$

Solution:

$\Rightarrow$ $p^2 + q^2 - pq$ Ans.

10) $a^2 + b^2 + c^3$, $-4a^3, 5b^3, 10c^3$

Solution:

$\Rightarrow$ $3a^2 + 6b^3 + 11c^2$ Ans.

Exercise 6.4

Substract:

1) $7x$ from $10x$

Soltuion:

$\Rightarrow$ $3x$ Ans.

2) $+8a^2$ from $+15a^2$

Solution:

$\Rightarrow$ $7a^2$ Ans.

3) $-10y^2$ from $+20y^2$

Soltuion:

$\Rightarrow$ $30y^2$ Ans.

4) $-9xy$ from $-18xy^2$

Solution:

$\Rightarrow$ $-9xy$ Ans.

5) $+20x^2y^2$ from $+25x^2y^2$

Soltuion:

$\Rightarrow$ $45x^2y^2$ Ans.

6) $3a^2+b^2$ from $3a^2+7b^2$

Solution:

$\Rightarrow$ $6b^2$ Ans.

7) $7x^2-10y^2+$ from $9x^2+17y^2$

Solution:

$\Rightarrow$ $2x^2+27y^2$ Ans.

8) $6x-5y+4z$ from $9x-2y+6z$

Solution:

$\Rightarrow$ $4a^2+13b^2-3c^2+3$ Ans.

9) $3a^2-4b^2-3c^2+4$ from $7a^2+9b^2-6c^2+7$

Solution:

$\Rightarrow$ $4a^2+13b^2-3c^2+3$ Ans.

10) $-y^3 + y^2 + {}^3y + 6$ from $y^3 - 7y^2 + 5y + 8$

Solution:

$\Rightarrow$ $2y^3 - 8y^2 + 2y + 2$ Ans.

11) $2x^4 + x^3 - 2x^2 + 5x + 7$ from $a^3 - 3a^2b + 4ab^2 + b^3$

Solution:

$\Rightarrow$ $-x^4 + 2x + 6x^2 - 7x - 3$ Ans.

12) $a^3 - 4a^2b + 3ab^2 - b^2$ from $a^3 - 3a^2b + 4ab^2 + b^3$

Solution:

$\Rightarrow$ $a^2b + ab^2 + 2ab^3$ Ans.

13) what should be added to $2x^3 + x^2 + 2x$ to get the sum $9x^3 + 4x^2 + 5x$?

Solution:

$\Rightarrow$ $7x^3 + 3x^2 + 3x$ Ans.

14) what should be added t0 $6a^2b^2 + 4b^2c^2 + 3c^2$ to get the sum of $11a^2b^2 + 8b^2c^2 + 7c^2$?

Solution:

$\Rightarrow$ $5a^2b^2 + 4b^2c^3 + 4c^2$ Ans.

15) what should be added to $4a^2 + 7b^2 + 9c^2d^2$ so that the sum be $14a^2 + 9b^2 + 12c^2 + 4d^2$?

Solution:

$\Rightarrow$ $10a^2 + 2b^2 + 3c^3 + 3d^2$ Ans.

16) What should substracted from $7a^2b^2 + 8c$ to get $3a^2b^2 + 5c^2$?

Solution:

$\Rightarrow$ $4a^2b^2 + 3c^2$ Ans.

17) what should be substracted from $4c^2 - 2a^3 + 7a^2 + 6a$ to get a $a^4 + 4a^3 + 3a^2 + 8a$?

Solution:

$\Rightarrow$ $3a^4 - 6a^3 + 4a^2 - 2$ Ans.

18) What should substracted from $x^2\ y^2 + 3xy + y^2$ get $2xy$?

Solution:

$\Rightarrow$ $x^2\ y^2 + x\ y + y^2$ Ans.

19) Substract the sum of $2x + 3y$, $4x - 2y$ from $10x + 3y$?

Solution:

$\Rightarrow$ $4x\ y + 4y$ Ans.

20) Substract from $10x^2 + 3x\ y + 9y^2$ sum of $3x^2 + 4xy + 5y^2$, $4x^2 - 2x\ y - 4y^2$?

Solution:

$\Rightarrow$ $3x + xy + 8y^2$ Ans.

Exercise 6.5

Find the product of the following algebraic expression:

1) $5a + 4b$ and 2

Solution:

$\Rightarrow$ $10a + 8b$

Ans

2) b^2 , a^2, b^2 , c^2

Solution:

$\Rightarrow$ $a^2\ b^4\ c^2$

Ans

3) $4x^2$, $7y^2$

Solution:

$\Rightarrow$ $28x^2 y^2$

Ans

4) $(-2x)$, $(4xy)$

Solution:

$\Rightarrow$ $-8x\,y$

Ans

5) $(-3a^2)$,$(7a^2 b^2)$

Solution:

$\Rightarrow$ $-21\,a^4 b^2$

Ans

6) $(4x^2 y^2)$,$(-5z^2)$

Solution:

$\Rightarrow$ $-20x^2 y^2 z^2$

Ans

7) $(-5p^2)$,$(-7p^{10})$

Solution:

$\Rightarrow$ $35p^{12}$

Ans

8) $2a^3$, $4b^2$, $5c^3$

Solution:

$\Rightarrow$ $40\,a^3 b^2 c^3$

Ans

9) $4a^2 b$, $3ab^2$, $10b^2 c^2$

Solution:

$\Rightarrow$ $120a^3 b^5 c^2$

Ans

10) $6p^2$, $7p^2$, $8p^2$

Solution:

$\Rightarrow$ $336p^5 q$

Ans

11) $(7x^3)$,$(-12x^3)$,$(4x^3)$

Solution:

$\Rightarrow$ $-336x^9$

Ans

12) $(-4a^2 x^2)$, $(-3a^3 x^3)$, $(-2a^4 x^4)$

Solution:

$\Rightarrow$ $-24\,a^9 x^9$

Ans

13) $xy^2 z, x^2 yz^2, x^3 y^3 z^3$

Solution:

$\Rightarrow$ $x^6 y^6 z^6$

Ans

14) $12abc^2 , 8a^3xy , 3x^2 y^2 z^3$

Solution:

$\Rightarrow$ $288 a^4 bc^2 x^3 y^3 z^3$

Ans

15) $(-4x) , (6xyz) , (-2x^2 y^2)$

Solution:

$\Rightarrow$ $48 x^4 y^3 z$

Ans

Exercise 6.6

Multiply together.

1) $5a + 4b$ and 2

Solution:

$\Rightarrow$ $10a + 8b$ Ans

2) $6x^2 - 5y^2$ and $3xy$

Solution:

$\Rightarrow$ $18x^3 y - 15xy^3$ Ans

3) $3a^2 - b^3$ and $-2ab$

Solution:

$\Rightarrow$ $-6a^4 b + 2ab^4$ Ans

4) $3x^4 + x^2 y$ and $2x^2 y^2$

Solution:

$\Rightarrow$ $6x^6 y^2 + 2x^4 y^3$ Ans

5) $4x^2 - y^2$ and $-4x^3 y$

Solution:

$\Rightarrow$ $16x^5 y + 4x^3 y^3$ Ans

6) $3a^2 + 2ab$ and $4ab$

Solution:

$\Rightarrow$ $12a^3 b + 8a^2 b^2$ Ans

7) $2x^3 - 3x^2 - 5$ and $3x^2$

Solution:

$\Rightarrow$ $6x^5 - 9x^4 - 15x^2$ Ans.

8) $3x^2 - 5x - 2$ and $-2x^2$

Solution:

$\Rightarrow$ $-6x^4 + 10x^3 + 4x^2$ Ans.

9) $2a^2 - ab + a^2 c$ and $2abc$

Solution:

$\Rightarrow$ $4a^3 bc - 2a^2 b^2 c + 2a^3 b^2$ Ans.

10) $2x^4 - x^3 y^2 + y^4$ and $2x^2 y$

Solution:

$\Rightarrow$ $4x^6 y - 2x^4 y^3 + 2x^2 y^5$ Ans.

11) $5x^2 - 2xy^2 + y^3$ and $3xy^2$

Solution:

$\Rightarrow$ $15x^2 - 2xy^2 + y^3$ and $3xy$ Ans.

12) $3a^3 - 5a^2b - 3ab^2$ and $2ab$

Solution:

$\Rightarrow$ $-6a^4b + 10a^3b^2 + 6a^2b^3$ Ans

13) $3x^2 + 3xy + y^2$ and $2y$

Solution:

$\Rightarrow$ $6x^2y + 6xy^2 - 2y^3$ Ans

14) $2x^3 - 3x^2 - 5$ and $-3x^2$

Solution:

$\Rightarrow$ $-6x^5 + 9x^4 + 15x^2$ Ans

15) $4x^3 - 8xy - 9y^2$ and $2xy$

Solution:

$\Rightarrow$ $8x^4y - 16x^2y^2 - 18xy^3$ Ans

Exercise 6.7

Find the product of:

1) $(x + 3)(x + 8)$

Solution:

$\Rightarrow$ $x^2 + 11x + 24$ Ans

2) $(2a + 3)(3a + 4)$

Solution:

$\Rightarrow$ $6a^2 + 17a + 12$ Ans

3) $(x - 7y)(x - 3y)$

Solution:

$\Rightarrow$ $x^2 - 10xy + 21y^2$ Ans

4) $(x - 6y)(x + 5y)$

Solution:

$\Rightarrow$ $x^2 - xy - 30y^2$ Ans

5) $(a + 5b)(2a - 2b)$

Solution:

$\Rightarrow$ $2a^2 + 106^2$ Ans

6) $(2x^2 + 5y^2)(2x^2 + 5y^2)$

Solution:

$\Rightarrow$ $4x^4 + 20x^2y^2 + 25y^4$ Ans

7) $(4x^2 - 3y^2)(5x^2 - 6y^2)$

Solution:

$\Rightarrow$ $20x^4 - 39x^2y^2 + 18y^4$ Ans

8) $(2a^2 - 3c^2)(7a^2 - 5c^2)$

Solution:

$\Rightarrow$ $14a^4 - 31a^2c^2 + 15c^2$ Ans

9) $(2x^2 + 3y^2)(5x^2 + 2y^3)$

Solution:

$\Rightarrow$ $10x^4 + 6y^5$ Ans

10) $(4x^2 + 3y^2)(3x^2 + 4y^2)$

Solution:

$\Rightarrow \quad 12x^4 + 25x^2y^2 + 12y^4$ Ans

Exercise 6.8

Divide:

1) $9x^4y^3$ by $3x^2y$

Solution:

$\Rightarrow \quad 3x^2y^2$ Ans

2) $20x^7y^2$ by $5x^4y^2$

Solution:

$\Rightarrow \quad 4x^3$ Ans

3) $25x^3y^7z^4$ by $5xyz^2$

Solution:

$\Rightarrow \quad 5x^2y^6z^2$ Ans

4) $28a^6b^5c^4$ by $7a^4b^3c$

Solution:

$\Rightarrow \quad 4a^2b^2c^3$ Ans

5) $42x^2y^2z^2$ by 6

Solution:

$\Rightarrow \quad 7x^2y^2z^2$ Ans

6) $40p^6\ q^6$ by $8p^4\ q^3$

Solution:

$\Rightarrow$ $sp^2\ q^2$ Ans

7) $39\ x^4\ y^5$ by $-3x^2\ y^5$

Solution:

$\Rightarrow$ $-12\ x^2\ y^2$ Ans

8) $-52\ x^2\ y^4\ z^{10}$ by $13\ x^2\ y^3\ z^7$

Solution:

$\Rightarrow$ $-4yz^2$ Ans

9) $81\ a^2\ b^6\ c^6$ by $-9a^3\ b^2\ a^4$

Solution:

$\Rightarrow$ $-9a^3\ b^4\ c^2$ Ans

10) $21\ x^7\ y^4$ by $-7x^5\ y^2$

Solution:

$\Rightarrow$ $3x^3\ y^2$ Ans

Exercise 6.9

Divide

1) $6\ x^2 + 4\ x\ y$ by $2\ x$

Solution:

$\Rightarrow$ $3x + 2y$ Ans

2) $8a^3\ b^2 - 12a^4\ b^3$ by $2ab$

Solution:

$\Rightarrow$ $4a^2b - 6a^3\ b^2$ Ans4

3) $12x^2y - 9xy^2$ by $2xy$

Solution:

$\Rightarrow$ $4x - 3y$ Ans

4) $16x^5 + 8x^4$ by $4x^2$

Solution:

$\Rightarrow$ $4x^3 + 2x^2$ Ans

5) $a^5 b^2 c^4 - a^3 b^3 c^3$ by abc

Solution:

$\Rightarrow$ $a^4 bc^3 - a^2 b^2 c^2$ Ans

6) $4x^5 y^7 + 6x^4 y^3$ by $2x^2 y^2$

Solution:

$\Rightarrow$ $2x^3 + 3x^2y$ Ans

7) $a^3 x^3 - a^2 bx^2 + a^3 x^5$ by ax

Solution:

$\Rightarrow$ $a^3 x^3 + abx + a^2 x^2$ Ans

8) $2a^2 b^2 - 4ab - 8b^3$ by $2b$

Solution:

$\Rightarrow$ $a^2 b - 2a - 4b^2$ Ans

9) $4a^7 b^5 + 2a^6 b^4 + 8a^5 b^4 + 12 a^4 b^2$ by $2a^3 b^2$

Solution:

$\Rightarrow$ $2a^4 b^3 + 3a^3 b^2 + 4a^2b + 6a$ Ans

10) $20a^3 b^3 c^3 + 30a^2 b^2 c^2 + 15 abc^3 + 10 abc$ by $5abc$

Solution:

$\Rightarrow \quad 4a^2 b^2 + 6abc + 3c^2 + 2$ Ans

Exercise 6 .10

Find the solution set of

1) $a + 9 = 15$

Solution:

$\Rightarrow \quad \{6\}$ Ans

2) $2x + 6 = 18$

Solution:

$\Rightarrow \quad \{6\}$ Ans

3) $3x - 7 = 17$

Solution:

$\Rightarrow \quad \{8\}$ Ans

4) $3a - 8 = 24$

Solution:

$\Rightarrow \quad \{8\}$ Ans

5) $8x + 4 = 60$

Solution:

$\Rightarrow \quad \{7\}$ Ans

6) $5y - 10 = 15$

Solution:

$\Rightarrow \quad \{5\}$ Ans

7) $6z + 12 = 36$

Solution:

$\Rightarrow \quad \{4\}$ Ans

8) $7p - 11 = 66$

Solution:

$\Rightarrow \quad \{11\}$ Ans

9) $10 + 6 = 56$

Solution:

$\Rightarrow \{5\}$

Ans

10) $9x - 9 = 72$

Solution:

$\Rightarrow \{9\}$

Ans

11) $\frac{9+7}{3} = 5$

Solution:

$\Rightarrow \{8\}$

Ans

12) $3x - \frac{1}{2} = \frac{21}{2}$

Solution:

$\Rightarrow \{\frac{11}{3}\}$

Ans

13) $\frac{4x+3}{3} = 9$

Solution:

$\Rightarrow \{6\}$

Ans

14) $\frac{3x}{2} - \frac{8}{3} = \frac{1}{2}$

Solution:

$\Rightarrow \{\frac{19}{9}\}$

Ans

15) $\frac{6y}{4} + \frac{7}{2} = \frac{1}{8}$

Solution:

$\Rightarrow \{\frac{-24}{12}\}$

Ans

16) $3(2x + 3) = -15$

Solution:

$\Rightarrow \{-4\}$

Ans

17) $\frac{4x+12}{8} = 8$

Solution:

$\Rightarrow \{13\}$

Ans

18) $8(a + 4) = 0$

Solution:

$\Rightarrow \{-4\}$

Ans

19) $\frac{3x}{2} - \frac{4}{5} = \frac{19}{5}$

Solution:

$\Rightarrow \quad \{ 2 \}$

Ans

20) $2 (2x - 3) = 28$

Solution:

$\Rightarrow \quad \{ 5 \}$

Ans

Exercise 6.11

Find the solution set of:

1) $5x - 4 = 2x + 11$

Solution:

$\Rightarrow \quad \{ 5 \}$ Ans

2) $2x = 7 + 3x$

Solution:

$\Rightarrow \quad \{ -7 \}$ Ans

3) $7y + 3 = y + 18$

Solution:

$\Rightarrow \quad \{ \frac{5}{2} \}$ Ans

4) $x + 3 = 18 - 3x$

Solution:

$\Rightarrow \quad \{ \frac{15}{4} \}$ Ans

5) $5 (a + 1) + 3) (a - 1) = 5$

Solution:

$\Rightarrow \quad \{ \frac{3}{8} \}$ Ans

6) $3(1-y)+4(y-5)=10$

Solution:

$\Rightarrow$ $\{27\}$ Ans

7) $3x-4=14-3x$

Solution:

$\Rightarrow$ $\{3\}$ Ans

8) $6x-4x=3x+84$

Solution:

$\Rightarrow$ $\{12\}$ Ans

9) $5(x+2)+3(x+4)+26$

Solution:

$\Rightarrow$ $\{\frac{1}{2}\}$ Ans

10) $3x+7+6x=x+28+5x$

Solution:

$\Rightarrow$ $\{7\}$ Ans

Exercise 6.12

1) A certain number plus 10 is 25 find the number.

Solution:

$\Rightarrow$ 15 Ans

2) I think of a number, twice the number plus 7 gives the result 17. Find the number.

Solution:

$\Rightarrow$ 5 Ans

3) When 3 is subtracted from four times a number if gives 21 as result find the number.

Solution:

⇒ 6 Ans

4) I think of a number, multiply it by 7 and subtract 10; the result is 25 find the number?

Solution:

⇒ 5 Ans

5) 8 years ago, the age of sadia was 7 years find her present age.

Solution:

⇒ 5 Ans

6) Bushra will be 15 years old, 2 years hence. How old is bushra now?

Solution:

⇒ 13 years Ans

7) if 9 is add to here times a number, the result is 30. Find the number.

Solution:

⇒ 7 Ans

8) My present age is 40 years. Now old small I be after 12 years and what was my age 14 years ago?

Solution:

⇒ 52 Ans

9) I think a number, double it and subtract 14; the result 30, find the number.

Solution:

⇒ 22 Ans

10) I think of a number, divide it by 2 two and subtract 7 the result is 8. Find the number.

Solution:

⇒ 30 Ans

Chapter 7

GEOMETRY

Exercise 7.1

6) The length of the bases of a trapezium are 9cm and 14cm and its altitude is 6cm, find the area of the trapezium?

Solution:

$\Rightarrow \quad \frac{1}{2}(9 + 14)(6)$

$\frac{1}{2}(23)(6)$

$\frac{1}{2}(138) = 69$ sq cm. Ans

7) The length of the bases of a trapezium are 3 cm and 8cm and its altitude is 2 cm. find the area of the trapezium?

Solution:

$\Rightarrow \quad \frac{1}{2}(3 \times 8)(2)$

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

$\frac{1}{2}(22)\ 11$ sq cm. Ans

Exercise 7.2

1) Find the circumference of a circle whose radius in 63 cm.

Solution:

⇒ C = 2 π r formula
C = 2 x π x 63
C = 126 π cm
Using π ≈ 3,14159
C = 126 x 3. 14159 ≈ 395.84cm Ans

2) Find the circumference of a circle when its diameter is 147m long.

Solution:

⇒ Formula: C = π d
C = π x 147
C = 147 π m
C = 147 x 3.14159 = 461.81m Ans

3) The radius of a circular building is 714m. how much time will be taken to move around the building with a speed of 3k m/h?

Solution:

⇒ C = 2 π r = 2 π (714) = 1428 π m
C = 1428 x 3.14159 ≈ 4487.11 km
Time = $\frac{4.48711}{3}$ ≈ 1.4957 hours
1.4957 x 60 ≈ 89.74m Ans

4) A plate 2.2m long is put on the rim of the bottom of a drum. Find the length of diameter of the circular bottom of the drum?

Solution:

$\Rightarrow$ $2.2 = \pi\, d$

$d = \frac{2.2}{\pi}$

$d \approx 0.70m$ Ans

5) How many revolutions will a wheel of radius 35cm make in coverting a distance of 660m?

Solution:

$\Rightarrow$ Radius = 35 cm = 0.35m

$2\pi(0.35) \approx 2.2$ m

$\frac{660}{2.2\pi} \approx \frac{660}{2.198} = 300$ Ans

6) The minute hand of a clock is 14m long. How much distance will the minute hand cover in?

1) One hour?

Solution:

$\Rightarrow$ $2\pi r = 2\pi(14) = 28\pi = 87.96m$ Ans.

2) Three hours?

Solution:

$\Rightarrow$ $3 \times 28\pi = 84\pi = 263.89m$ Ans

3) Twenty four hours?

Solution:

$\Rightarrow$ Distance = $24 \times 28\pi = 672\pi$ 2111.5 m Ans

4) Half on hour?

Solution:

$\Rightarrow$ Distance = $\frac{1}{2}$ x 28 π = 14 π = 43.98m Ans

Exercise 7.3

1) Find the area of the circular region, when the radius is:

1) 28 cm

Solution:

$\Rightarrow$ $A = \pi (28)^2$, $A = \pi (784)$

$A \approx 2463.008$ cm^2 Ans

2) 4.9m

Solution:

$\Rightarrow$ $A = \pi (4.9)^2$, $A = \pi (24.01)$

$A \approx 75.43$ m^2 Ans

3) 42cm

Solution:

$\Rightarrow$ $A = \pi (42)^2$, $A = \pi (1764)$

$A = 5541.769$ cm^2 Ans

4) 1.4m

Solution:

$\Rightarrow$ $A = \pi (1.4)^2$, $A = \pi (1.96)$

$A = 6.1575$ m^2 Ans

2) Find the diameter of the circular region when its area is:

1) 154 sq.cm

Solution:

$\Rightarrow$ $154 = \pi r^2$

$r^2 = \frac{154}{\pi} r^2$

$r = 7cm$

diameter $= 2r = 14cm$ Ans

2) 2464sq cm

Solution:

$\Rightarrow$ $2464 = \pi r^2$

$r^2 \frac{2464}{\pi} \approx 784$

$r = 28$ cm

diameter $= 2r \approx 56$ cm.

3) $3850 = \pi r^2$

Solution:

$\Rightarrow$ $3850 = \pi r^2$

$r^2 = \frac{3850}{\pi} \approx 122$

$r = 35m$, diameter $= 2r \approx 70m$ Ans

4) 124.74 sq cm

Solution:

$\Rightarrow$ $124.74 = \pi r^2$

$r^2 \frac{124.74}{\pi} \approx 391$

$r = 6.3m$. diameter $= 2r \approx 12.6$ cm Ans

3) Find the area of a circular ground if diameter is 126m long.

Solution:

$\Rightarrow$ $126 / 2 = 63$ m

Area $= \pi r^2 = \pi (63)^2 \approx 12474$ sq.m Ans

4) A circular fountain is built in the center of crossing its radius in 3m. what is the area of the fountain?

Solution:

$\Rightarrow$ $\pi (3)^2 = 9\pi = 28.27$ sq.m Ans

5) A table cover is made 70 cover a round dinning table. The radius of the table cover is 1m long. What is the area of table cover.

Solution:

$\Rightarrow$ $\pi (1)^2 = \pi \approx 3.14$ sq.m Ans

6) The diameter of a circular part is 35m. find the cost of planting grass at the rate of Rs. 15.20 per square meter.

Solution:

$\Rightarrow$ $34 / 2 = 17.5$m

$\pi (17.5)^2 \approx 962$ sq.m

$932.11 \times 15.20 = 14614.15$ Rs Ans

7) The length of an arm of a fan as measured from tis center is 10cm. what will be the area moved through by the arm in one revolution?

Solution:

$\Rightarrow$ $\pi (10)^2 = 100\,\pi = 3.14.16$ sq.m Ans

Exercise 7.4

In each of the following the radius of the base of the cylinder and its height is given, find its volume.

1) Radius = 2.8m , Height = 5m

Solution:

$\Rightarrow$ $v = \pi (2.8)^2 (8) = 123.15\ m^3$ Ans

2) Radius = 1.05m, height = 2.5m

Solution:

$\Rightarrow$ $v = \pi (1.05)^2 (2.5) \approx 8.66\ m^3$ Ans

3) The diameter of a cylindrical tank is 13m long and its hight is 14m. find the volume of the tank.

Solution:

$\Rightarrow$ $v = \pi r^2 h = \pi(6)^2 (14) = 504\,\pi \approx 1583.36 m^3$ Ans.

4) The diameter of a cylindrical tank is 14m long and its volume is 1540 cubic meters, find its height.

Solution:

$\Rightarrow$ $v = \pi r^2 h$, $1540 = \pi (70)^2 h$

$h = \frac{1540}{49\pi} = 10$ m Ans.

5) If the radius of the mouth of 3.5m deep a cylindrical pit is 1.5m, how much will be needed to fill its?

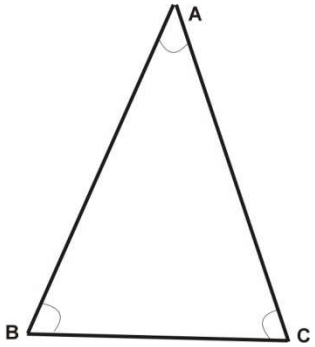
Solution:

$\Rightarrow$ $v = \pi r^2 h = \pi (1.5)^2 (3.5) = 7.875 \approx 24.74\ m^3$

Ans

Exercise 7.5

1) Measure the angles and lengths of the sides of the following triangle:



Solution:

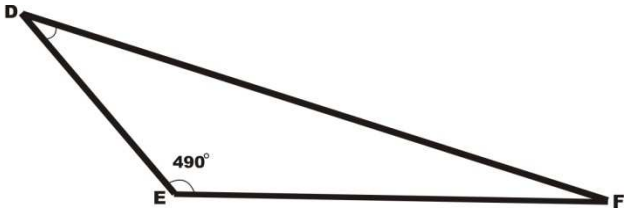
$\Rightarrow$ $m < BAC = 50°$

$m < ACB = 60°$

$m < CBA = 70°$

$m < BAC + m < ACB + m < CBA =$

$80° + 60° + 70° = 180°$ Ans

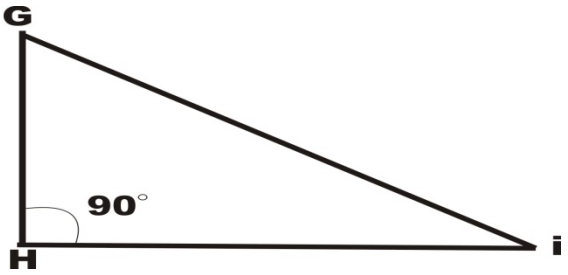


2)

Solution:

⇒ m < DEF = 60°
m < EFD = 60°
m < FDE = 70°
m < DEF + m < EFD + m < FDE
60° + 60° + 70° + 190°

Ans



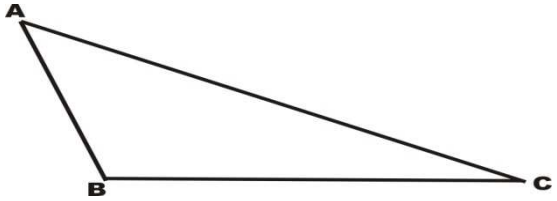
3)

Solution:

⇒ m < GHI = 90°
m < HIG = 50°
m < IGH = 70°
m < GHI + m < HIG + m < IGH
90° + 50° + 40° + 180°

Ans

2) Measure the angles of the triangle given below and verify that the sum of the measure of all angle in every triangles in 108°.

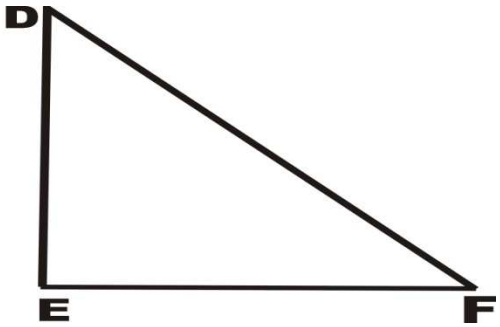


1)

Solution:

⇒ m < CAB = 50°
m < ABC = 60°
m < BCA = 70°
m < CAB + m < ABC + m < BCA
50° + 60° + 70° + 180°
Ans

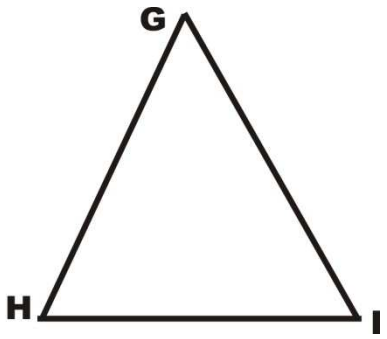
2)



Solution:

⇒ m < DEF = 50°
m < EFD = 50°
m < FDE = 80°
m < DEF + m < EFD + m < FDE
50° + 50° + 80° + 180°
Ans

3)

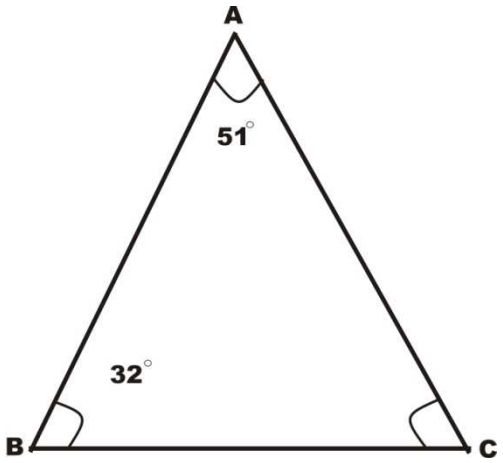


Solution:

⇒ m < GHI = 90°
m < HIG = 60°
m < IGH = 30°
m < GHI + m < HIG + m < IGH
90° + 60° + 30° + 180°
Ans

3) Measure those angle of the trainglee given below which are not indicated. Also find their measures without actually measuring them.

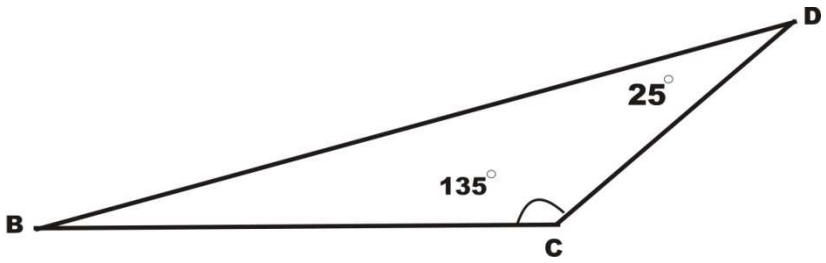
1)



Solution:

⇒ 180° = m < A + m <B + m <C
180° = s1° + 32° + m<C
180° = 83° + m<C
180° - 83° = m<C
97° = mlc Ans

2)



Solution:

⇒ $180° = m < B + m < C + m < D$

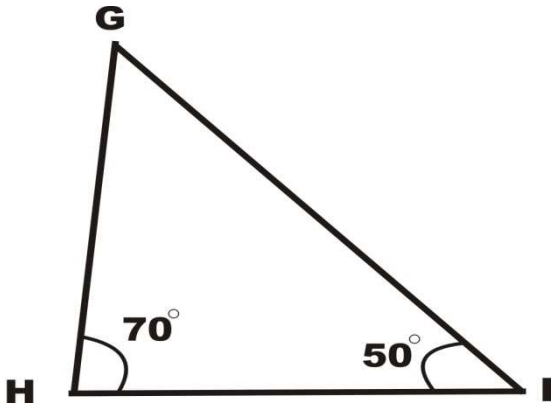
$180° = m<B + 135° + 25°$

$180° = m<B + 160°$

$160° - 180° = m<B$

$20° = m<B$ Ans

3)



Solution:

⇒ $180° = m < G + m < H + m < I$

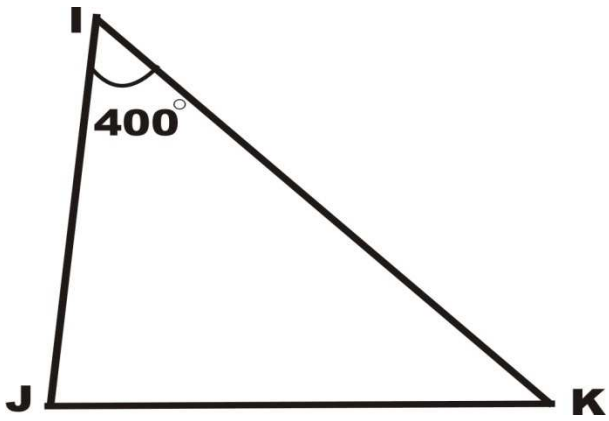
$180° = m< a + 70° + 50°$

$180° = m<G + 120°$

$180° - 120° = m<G$

$60° = m<G$ Ans

4) Find the measure off an active angle of a right angled trangle when the measure of the other active anglegiven.



Solution:

⇒ 180° = m < I + m <J + m <K
180° = 48° m< k
180° = 48 = m<J + m< k
132° – = m<J + , < K Ans

2) m < L = 48°.

Solution:

⇒ 180° = m < L + m < M + m < N
180° = 48° m< M + m< N
180° – 48 = m< M + m <N
132° = m <M + m < N Ans

3) $m < P = 55°$

Solution:

$\Rightarrow$ $180° = m < O + m < P + m < R$

$180° = m< O + 55° + 90°$

$180° = m< O + 145°$

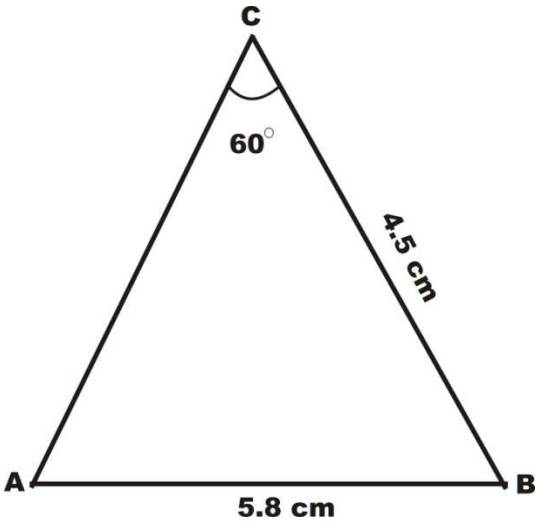
$180 - 145 = m < O$ Ans

Exercise 7.6

1) Construct a triangle in each of the following when two its sides and the included angle is given.

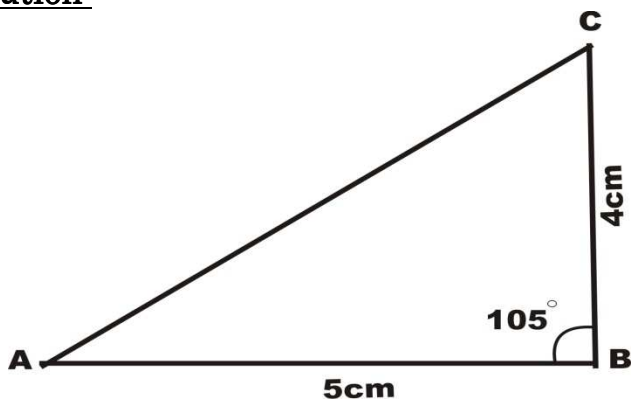
1) m AB = 5.8cm , mBC = $\overline{4.5}$cm, m<b = $\overline{60°}$

Solution:



2) m AB =Sum, mBC = 4cm, m<b = 105°

Solution:



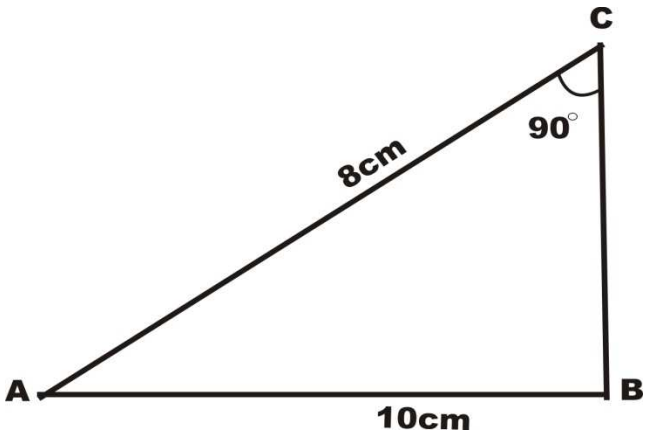
Ans

2) Constract a right triangle ABC when hypotenuse and one of the adjacent is given below (m< c = 90°)

1) mAB = 10cm, mAC = 8cm

Solution:

⇒

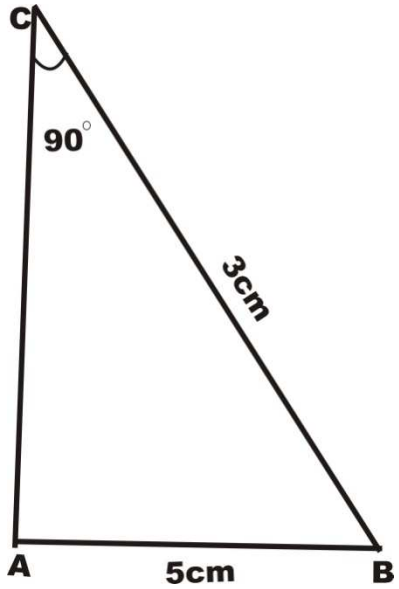


Ans

2) $m\overline{AB} = 5cm$, $m\overline{BC} = 3cm$

Solution:

⇒



Ans

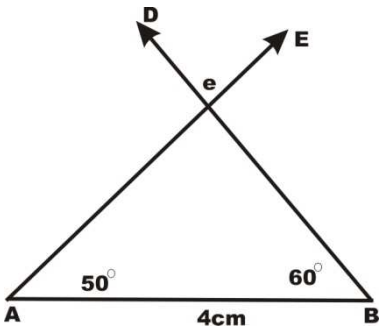
Exercise 7.7

1) Construct triangle ABC when the following are two angles and the included side:

1) $m\angle A = 50°$, $m\angle B = 60°$, and $m\overline{AB} = 4cm$.

Solution:

⇒

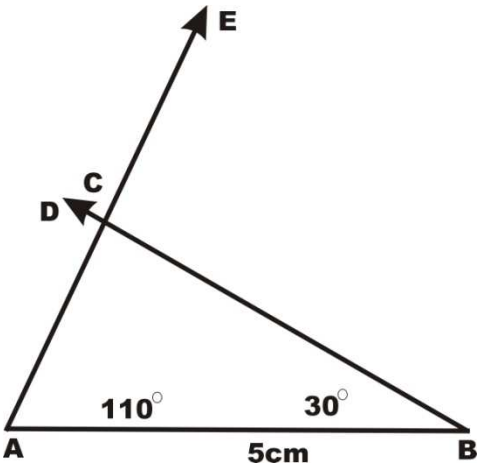


Ans

2) m<A = 110° , m<B = 30° , and mAB = 5cm

Solution:

⇒



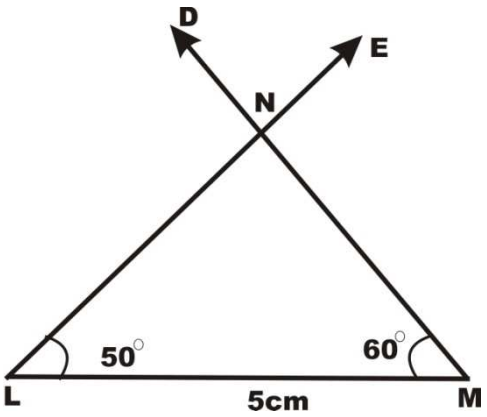
Ans

2) Construct triangle LMN when the measure of two angles E the measure of a side opposite one of these angle are given:

1) m<L = 50°, m<M = 60° and mLN = 4cm

Solution:

⇒

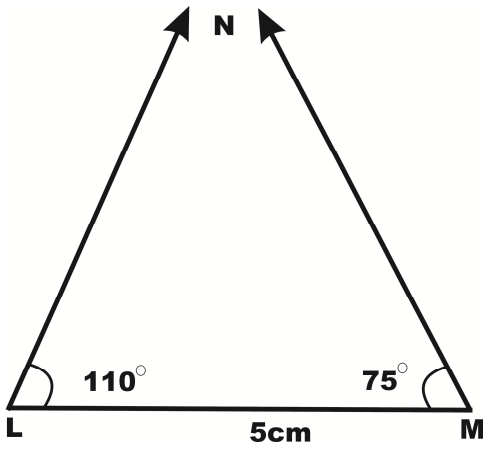


Ans

2) $m\angle L = 110°$, $m\angle M = 75°$ and $mLN = 5cm$.

Solution:

$\Rightarrow$



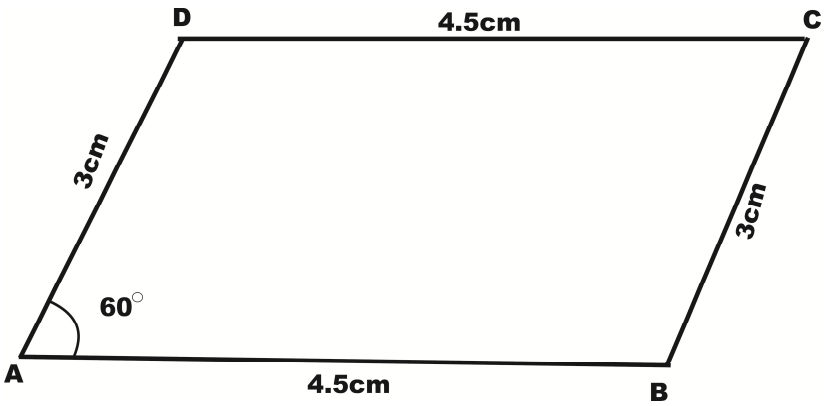
Ans

Exercise 7.8

1) Construct paralleigram ABCD when.

1) $mAB = 4.5cm$, $mAD = 3cm$, $m\angle A = 60°$

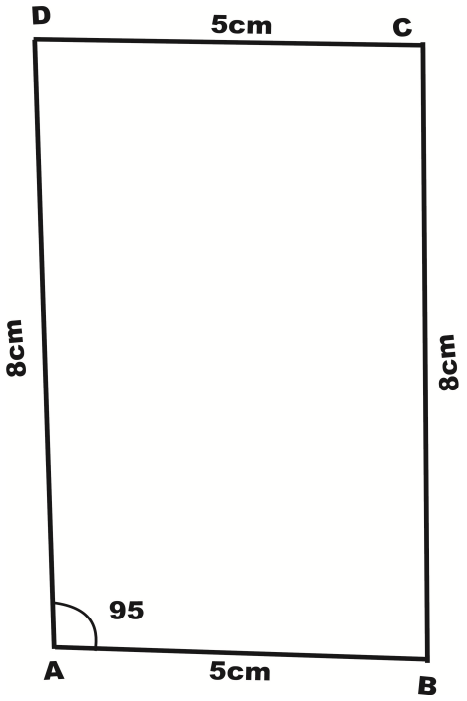
Solution:



Ans

2) mAB = 5cm, mAD = 8cm, m<A = 85°

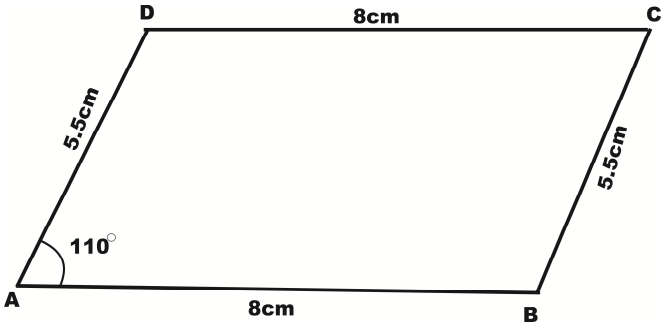
Solution:



Ans

3) mAB = 8cm, Am AD = 5.5cm and m<A = 110°

Solution:

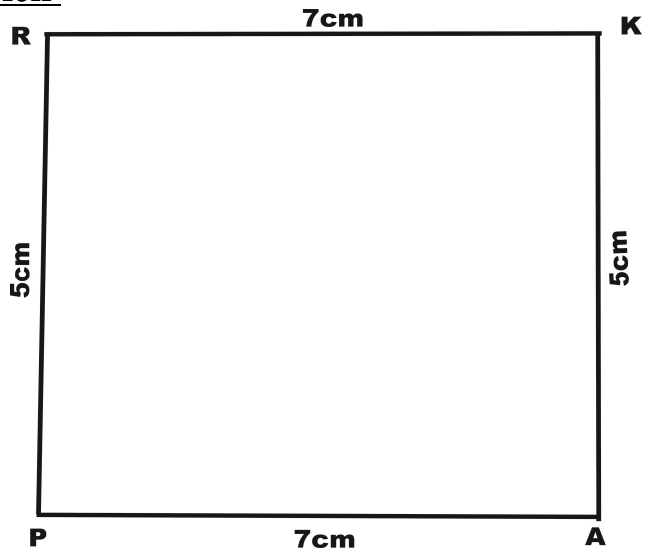


Ans

2) Draw a parallelogram PARK when.

1) mPA = 7cm, mPR = 5cm and mAK = 6cm

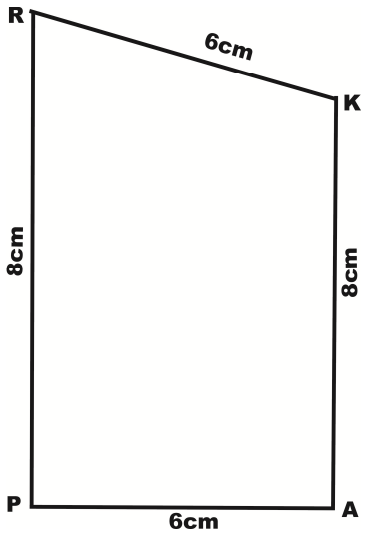
Solution:



Ans

2) mPA = 4.3cm , mPK = 7.7cm and mAK = 6.2cm

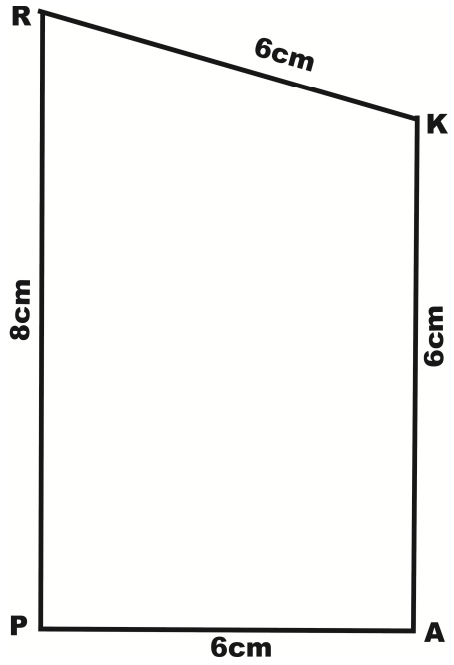
Solution:



Ans

3) mPA = 6cm , mPK = 8cm and mAK = 6cm

Solution:



Ans

Chapter 8

INFORMATION HANDLING

Exercise 8.1

1) Represent the following data by a pie-graph.

Solution:

Item	Area Cultivate	Measure of the angles of the sectors representing the expenses
Wheat	800 acre	800/ 300 x 360 = 960°
Grain	200 acre	200/ 300 x 360 = 240°
Barley	40 acre	40/ 300 x 360 = 48°
Pluses	120 acre	120/ 300 x 360 = 144°
Grass	40 acre	40/ 300 x 360 = 48°
Total	300	1440°

2) Represent the following data by pie graph. Ans

Distance	Population	Measure of the angle of the sectors representing the exprenses.
1	14 lac	14/36 x 360 = 140
2	10 lac	10/36 x 360 = 100
3	6 lac	6 /36 x 360 = 60
4	2 lac	2/36 x 360 = 20
5	4 lac	4/36 x 360 = 40
Total	36	360° Ans

3) Represent the following data by a pie-graph.

Solution:

Item	Expenditure	Measure of the angle of the sectors representing the exprenses.
Food	Rs. 4000	4000/7000 x 360 = 205 : 71
Education	Rs. 500	5000/7000 x 360 = 25 : 71
Utility Bills	Rs. 1000	1000/7000 x 360 = 51 : 42
Miscelleneaus	Rs. 1500	1500/7000 x 360 = 77 : 142
Expenses		
Total	7000	359.982 Ans

Exercise 8.2

1) following are marks obtained by 22 students in math's test. 10,9,8,5,12,6,14,10,7,13,6,5,16,19,14,13,12,11, 4,0,7,2. Taking 4 as the span of the class internal, arrange the date by tailly method. Write down the frequencies also.

Solution:

Mark obtained	Tally Marks	Frequency
0 – 3	1111	4
4 – 7	1111	4
8 – 11	~~1111~~ 11	7
12 – 15	~~1111~~	5
16 – 19	11	2
Total		22 Ans

2) Following table represent the marks obtained by students in mathematics.

Marks Obtained	Number of Students
1 – 10	5
11 – 20	16
21 – 30	3
31 – 40	8
41 – 50	7
Total	39

Ans

3) Keeping above the table in view answer following questions:

1) How many students are there?

❖ 39 Ans

2) How many class internals are there?

❖ 1 – 10, 11 – 20, 21 – 30, 31 – 40, 41 – 50, Ans

3) What are class boundries of class internal?

1-10 : 0.5 -10.5, 11-20 : 10.5 – 20.5 , 21-30 : 20.5 - 30.5, 31-40 : 30.5 -40.5 , 41.-50 : 40.5 – 50.5 Ans

4) What are class marks {mid point} of class internal?

1-10 = (1+10) 12 = 5.5 , 11-20 = (11+20) /2 = 15.5,21 – 30 (21+30) /2 = 25.5 31-40 = (31 + 40) /2 = 35.5 , 41-50 = (41+50) /2 = 45.5 Ans

5) What is size of each class interval?

10 – 1 + 1 = 10 Ans