

**FA – II**  
**Class – VII**  
**Mathematics**

Chapter 4 Rational Numbers

Points to remember:-

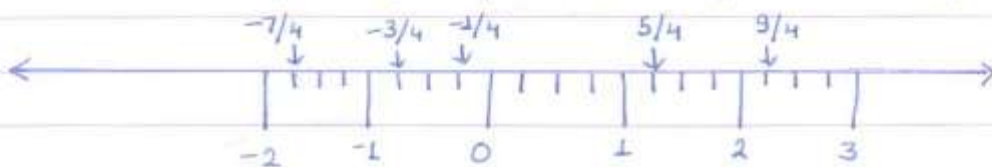
- 1 Rational Numbers
- 2 Positive and negative rational numbers
- 3 Equivalent rational numbers
- 4 Representing rational numbers on a number line
- 5 Rational number in the standard form
- 6 Comparison of rational numbers
- 7 Rational number between two rational numbers
- 8 Operation on rational numbers :- Addition, subtraction, multiplication and division
- 9 Rational number as decimal numbers

Exercise 4.1

(1) Positive rational numbers :-  $\frac{4}{11}, \frac{-9}{-50}, \frac{6}{9}$

Negative rational numbers :-  $\frac{7}{10}, \frac{-8}{16}, \frac{15}{-34}$

(2) Numbers are  $\frac{-3}{4}, \frac{-1}{4}, \frac{5}{4} = 1\frac{1}{4}, \frac{-7}{4} = -1\frac{3}{4}, \frac{9}{4} = 2\frac{1}{4}$



(3) (a)  $\frac{-110}{121} = \frac{-110 \div 11}{121 \div 11} = \frac{-10}{11}$

(d)  $\frac{56}{-96} = \frac{56 \div 8}{-96 \div 8} = \frac{7}{-12}$

(5) (a)  $\frac{-2}{11} = \frac{-2}{11} \times \frac{2}{2} = \frac{-4}{22}, \frac{-2}{11} \times \frac{3}{3} = \frac{-6}{33},$   
 $\frac{-2}{11} \times \frac{4}{4} = \frac{-8}{44}, \frac{-2}{11} \times \frac{5}{5} = \frac{-10}{55}$

$$(d) \frac{-15}{4} = \frac{-15 \times 2}{4 \times 2} = \frac{-30}{8}, \quad \frac{-15}{4} \times \frac{3}{3} = \frac{-45}{12}$$

$$\frac{-15}{4} \times \frac{4}{4} = \frac{-60}{16}, \quad \frac{-15}{4} \times \frac{5}{5} = \frac{-75}{20}$$

$$(7) (a) \frac{-9}{27} = \frac{-9 \div 9}{27 \div 9} = \frac{-1}{3}$$

$$\frac{-5}{15} = \frac{-5 \div 5}{15 \div 5} = \frac{-1}{3}$$

$\frac{-9}{27}$  and  $\frac{-5}{15}$  represents the same rational number

$$(f) \frac{9}{-14} = \frac{9}{-14}$$

$$\frac{-18}{-24} = \frac{-18 \div 6}{-24 \div 6} = \frac{-3}{-4} = \frac{3}{4}$$

$\frac{9}{-14}$  &  $\frac{-18}{-24}$  do not represent same rational number.

$$(9) (a) \frac{3}{5}, \frac{1}{2}$$

LCM of 5 and 2 is 10

$$\frac{3}{5} = \frac{3}{5} \times \frac{2}{2} = \frac{6}{10} \rightarrow (1)$$

$$\frac{1}{2} = \frac{1}{2} \times \frac{5}{5} = \frac{5}{10} \rightarrow (2)$$

$$\therefore \frac{5}{10} < \frac{6}{10}$$

$$\therefore \frac{1}{2} < \frac{3}{5}$$

(11) (a) -4 and -5

$$-4 = -4 \times \frac{10}{10} = \frac{-40}{10}$$

$$-5 = -5 \times \frac{10}{10} = \frac{-50}{10}$$

Four rational numbers are  $\frac{-41}{10}, \frac{-42}{10}, \frac{-43}{10}, \frac{-44}{10}$

### Exercise 4.2

$$(1)(a) \quad \frac{-5}{14} + \frac{-6}{14} = \frac{-5-6}{14} = \frac{-11}{14}$$

$$(f) \quad \frac{-16}{41} + \frac{39}{41} = \frac{-16+39}{41} = \frac{23}{41}$$

$$(2)(a) \quad \frac{1}{5} + \frac{3}{25} = \frac{5+3}{25} = \frac{8}{25}$$

$$(f) \quad \frac{11}{17} + \left(\frac{-2}{34}\right) = \frac{22-2}{34} = \frac{24 \div 2}{34 \div 2} = \frac{12}{17}$$

$$(3)(a) \quad \frac{-5}{6} + \frac{-4}{5} = \frac{-25-24}{30} = \frac{-49}{30} = -1\frac{19}{30}$$

$$(4)(c) \quad \frac{3}{8} + \left(\frac{-1}{2}\right) + \left(\frac{-3}{4}\right) = \frac{3-4-6}{8} = \frac{-7}{8}$$

$$(5)(a) \quad \frac{9}{12} - \frac{5}{12} = \frac{9-5}{12} = \frac{4 \div 4}{12 \div 4} = \frac{1}{3}$$

$$(6)(a) \quad \frac{1}{2} - \left(\frac{-3}{4}\right) = \frac{2+3}{4} = \frac{5}{4} = 1\frac{1}{4}$$

### Exercise 4.3

$$(1)(a) \quad \left(\frac{-3}{5}\right) \times \frac{10}{27} = \left(\frac{-3}{5}\right) \times \frac{10^2}{27 \cdot 9} = \frac{-2}{9}$$

$$(2)(a) \quad \frac{2}{3} \times \frac{9}{11} \times \left(\frac{-44}{63}\right) = \frac{2}{3} \times \frac{8}{11} \times \left(\frac{-44}{63}\right) = \frac{-8}{21}$$

$$(3)(a) \quad \left(\frac{-2}{3}\right) \div \left(\frac{1}{4}\right) = \frac{-2}{3} \times \frac{4}{1} = \frac{-8}{3} = -2\frac{2}{3}$$

$$(d) \quad \left(\frac{14}{3}\right) \div \left(\frac{-7}{6}\right) = \frac{14^2}{3} \times \frac{-6^2}{7} = \frac{-4}{1} = -4$$

$$(4)(a) \quad -3 \div \left(\frac{-1}{3}\right) = -3 \times \frac{-3}{1} = \frac{9}{1} = 9$$

$$(d) \quad 1\frac{1}{2} \div \left(-3\frac{1}{4}\right) = \frac{3}{2} \div \left(\frac{-13}{4}\right)$$

$$= \frac{3}{2} \times \frac{-4^2}{13} = \frac{-6}{13}$$

Exercise 4.4

(1) (a)  $\frac{3}{4}$

Ans: - 0.075

$$\begin{array}{r} 4 \overline{) 30} \cdot 75 \\ \underline{28} \phantom{00} \\ 20 \\ \underline{20} \\ 00 \end{array}$$

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

Ans: -  $1.333\dots$   
 $= 1.\overline{3}$

$$\begin{array}{r} 3 \overline{) 4} \cdot 3 \\ \underline{3} \phantom{00} \\ 10 \\ \underline{9} \\ 1 \end{array}$$

(4) Required weight of mixture =  
Weight of maida + weight of sugar + weight of cocoa powder

$$= \left( 1\frac{1}{2} + \frac{3}{5} + \frac{1}{20} \right) \text{ Kg}$$

$$= \left( \frac{3}{2} + \frac{3}{5} + \frac{1}{20} \right) \text{ Kg}$$

$$= \left( \frac{30 + 12 + 1}{20} \right) \text{ Kg} = \frac{43}{20} \text{ Kg} = 2\frac{3}{20} \text{ Kg}$$

(5) Required length of piece of sari

$$= \left( 6\frac{1}{4} - 2\frac{3}{4} \right) \text{ m}$$

$$= \left( \frac{25}{4} - \frac{11}{4} \right) \text{ m} = \frac{14}{4} \text{ m} = \frac{7}{2} \text{ m}$$

$$= 3\frac{1}{2} \text{ m}$$

(7) Required number of bottles =  $\left( 10 \div \frac{3}{7} \right) \text{ l}$

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

$$= \frac{70}{3} \text{ l} = 23\frac{1}{3} \text{ l}$$

(8) (a)  $4\frac{1}{6} + \frac{11}{6} = 6$

(b)  $\frac{5}{12} - \frac{1}{3} = \frac{1}{12}$

(c)  $\frac{5}{3} \times \frac{1}{4} = \frac{5}{12}$

(d)  $1\frac{2}{3} \div \frac{1}{3} = 5$



## Chapter 6 Algebraic Expressions

### Points to remember :-

- 1 Terms of an algebraic expression
- 2 Factors of a term
- 3 Coefficients
- 4 Like and unlike terms
- 5 Monomials, binomials, trinomials and polynomials
- 6 Addition and subtraction of algebraic expressions
- 7 Value of an algebraic expressions

### Exercise :- 6.1

(1) (a)  $a + b$

(b)  $4b - a$

(c)  $\frac{1}{3}(x + y + z)$

(d)  $a^2 + b^2$

(e)  $\frac{x \times 2y}{7}$

(f)  $2(p \times q) + 10$  or  $2pq + 10$

(g)  $xy - (x + y + z)$

(h)  $5a - bc$

(2) (a)  $7x$ , here 7 and  $x$  are factors

$$\begin{array}{c} 7x \\ / \quad \backslash \\ 7 \quad x \end{array}$$

(3) (a)  $16 - 5x$ , Here  $-5x$  is required term  
Factors of  $-5x$  are  $-5$  and  $x$ .

(4) (a)  $4x + 7y$ , Here  $4x$  is term which contains  $x$   
Coefficient of  $x$  is 4.

- (7) (a)  $3x - 4y$ , binomial  
 (b)  $7xyz$ , monomial  
 (c)  $a + b + c$ , trinomial  
 (d)  $x^2y^2 + y^2z^2$ , binomial  
 (e)  $a^2 - b^2$ , binomial  
 (f)  $\frac{x}{3} + \frac{y}{4} + 10$ , trinomial  
 (g)  $10x + 7y - 11z$ , trinomial  
 (h)  $11a$ , monomial  
 (i)  $9x - 3x^2$ , binomial  
 (j)  $15abc$ , monomial

(8) (a)  $-15x$  and  $0.15z$  are like terms because variables are same

(f)  $24xy$  and  $24yz$  are unlike because variables in the terms are different.

- (10) (a) All are like terms  
 (b) All are unlike terms  
 (c) All are unlike terms  
 (d) All are like terms.

### Exercise 6.2

(1) (a)  $3x + 7x = 10x$   
 (f)  $10y + y = 11y$

(2) (a)  $3x + 7y - 2x + 9y$   
 $= 3x - 2x + 7y + 9y$   
 $= x + 16y$

(b)  $a^2 - 3a + 4a - 8a^2$   
 $= a^2 - 8a^2 - 3a + 4a$   
 $= -7a^2 + a$

$$\begin{aligned}
 (3) (a) \quad & 5x + (-3x) + 4x + (-10x) \\
 & = 5x + 4x - 3x - 10x \\
 & = 9x - 13x
 \end{aligned}$$

$$\begin{aligned}
 (f) \quad & (x+y+z) + (y-z) + (x-y) + (-x+z) \\
 & = x + \cancel{x} - \cancel{x} + y + y - y + \cancel{z} - \cancel{z} + z \\
 & = x + y + z
 \end{aligned}$$

$$\begin{array}{r}
 (4)(a) \quad \begin{array}{r} 3x - 4y \\ -17x + 15y \\ 8x - 7y \\ \hline -6x + 4y \end{array} \\
 (b) \quad \begin{array}{r} a^2 + 3b^2 \\ 2a^2 - 5b^2 \\ -6a^2 + 9b^2 \\ \hline -3a^2 + 7b^2 \end{array}
 \end{array}$$

$$\begin{aligned}
 (5) \quad \text{Total length of the plank} & = (3x-7) + (7x-15) \\
 & = (10x-22) \text{ m}
 \end{aligned}$$

$$\begin{aligned}
 (8) \quad \text{Perimeter of triangle} & = \text{Sum of all sides of triangle} \\
 & = (3a-7b+8c) + (a-9b+10c) + (-9+8b-11c) \\
 & = (4a-8b+7c) \text{ cm.}
 \end{aligned}$$

$$\begin{aligned}
 (9) \quad \text{Perimeter} & = \text{Sum of all sides} \\
 & = (4x-17) + (2x-14) + (3x-5) + (x-2) \\
 & = 10x-38
 \end{aligned}$$

### Exercise 6.3

$$\begin{aligned}
 (1) (a) \quad & 5a - 3a = 2a \\
 (b) \quad & 3b^2 - 8b^2 = 5b^2 \\
 (c) \quad & 17 - (18a^2 + 11) = 17 - 11 - 18a^2 = 6 - 18a^2 \\
 (d) \quad & 3x^2 - (16 - x^2) = 3x^2 - 16 + x^2 = 4x^2 - 16
 \end{aligned}$$

$$(3) (a) (3a^2 + 5ab - 7b^2) + (11a^2 - 6ab + 2b^2) - (a^2 - 2ab - 3b^2) \\ = 13a^2 + ab - 2b^2$$

$$(4) (a^2 + 3ab - 7b^2) + (6a^2 - 9ab + b^2) - (11a^2 - ab - 6b^2) \\ = -4a^2 - 5ab$$

$$(5) (-x^2 + 2xy + y^2) - (7x^2 + 3xy - y^2) \\ = -8x^2 - xy + 2y^2$$

$$(6) (3x + 8xy + 9y) - (7x - xy + 8) \\ = -4x + 9xy + y$$

$$(7) \text{ Required distance} = (6x - 12) - (2x + 3) \\ = (4x - 15) \text{ km}$$

$$(9) \text{ Money left} = (12x + 25) - (8x - 30) \\ = \text{Rs} (4x + 55)$$

$$(10) \text{ Money left} = (7x - 50) - \{(2x + 15) + (3x - 20)\} \\ = \text{Rs} (2x - 45)$$

### Exercise 6.4

$$(1) (a) x - 2 = 3 - 2 = 1$$

$$(b) 1 - x = 1 - 3 = -2$$

$$(c) 4x - 7 = 4 \times 3 - 7 = 12 - 7 = 5$$

$$(d) 2x^2 - 3x - 4 = 2 \times 3^2 - 3 \times 3 - 4 = 18 - 9 - 4 = 5$$

$$(e) \frac{5x}{6} = \frac{5 \times 3}{6} = \frac{5}{2}$$

$$(2) (a) y + 2 = -2 + 2 = 0$$

$$(b) 2 - y = 2 - (-2) = 2 + 2 = 4$$

$$(c) y^2 - 2 = (-2)^2 - 2 = 4 - 2 = 2$$

$$(d) y^2 - 4 = (-2)^2 - (-2) = 4 + 2 = 6$$



$$\begin{aligned}
 (3)(a) \quad \text{For } x=1, \quad & 5x^2 - 6x + 1 \\
 & = 5(1)^2 - 6(1) + 1 \\
 & = 5(1) - 6 + 1 \\
 & = 5 - 6 + 1 \\
 & = 6 - 6 = 0
 \end{aligned}$$

$$\begin{aligned}
 (e) \quad \text{For } x=-2, \quad & 5(-2)^2 - 6(-2) + 1 \\
 & = 5(4) + 12 + 1 \\
 & = 20 + 12 + 1 \\
 & = 33
 \end{aligned}$$

$$\begin{aligned}
 (5)(a) \quad \text{If } a=1, b=-1, c=0, \text{ then} \\
 a+b+c & = 1 + (-1) + 0 \\
 & = 0 + 0 \\
 & = 0
 \end{aligned}$$

~~(c)~~

$$\begin{aligned}
 (c) \quad & 2a^2 + 3b^2 + 4c^2 \\
 & = 2(1)^2 + 3(-1)^2 + 4(0)^2 \\
 & = 2(1) + 3(1) + 0 \\
 & = 2 + 3 = 5
 \end{aligned}$$

$$\begin{aligned}
 (6)(a) \quad & 4x - 3 + 8 - 5x \\
 & = 4x - 5x - 3 + 8 \\
 & = -x + 5 \\
 & = -3 + 5 = 2
 \end{aligned}$$

$$\begin{aligned}
 (d) \quad & 3(x+2) - 5(1-x) \\
 & = 3x + 6 - 5 + 5x \\
 & = 8x + 1 \\
 & = 8 \times 3 + 1 = 24 + 1 \\
 & = 25
 \end{aligned}$$

$$\begin{aligned}
 (7)(a) \quad & 3(x-y) + 4x - y \\
 & = 3x - 3y + 4x - y \\
 & = 7x - 4y \\
 & = 2(2) - 4(-2)
 \end{aligned}$$

(8) For  $x=4$ ,  $x^2 - (2x+8)$   
 $= x^2 - 2x - 8$   
 $= 4^2 - 2(4) - 8$   
 $= 16 - 8 - 8$   
 $= 16 - 16 = 0$

(10)(a)  $P = 4a$

(b)  $a+b+c+d = 360$

(c)  $A = b \times b$

(d)  $A = \frac{1}{2} \times b \times h$

Class: - 7th

Subject: - Mathematics

Chapter 7 Linear Equations

Points to remember: -

(1) Linear equations

(2) Solving an equation

(3) Applications of simple equations to practical problems

## Exercise:- 7-1

- (1) (a)  $x + 3 = 10$   
(b)  $x - 12 = 23$   
(c)  $5x = 75$   
(d)  $\frac{x}{6} = -6$   
(e)  $3x + 16 = 1$   
(f)  $2 - 5x = 12$   
(g)  $2x - 7 = 11$   
(h)  $\frac{x}{3} + 3 = 6$

- (2) (a) 2 added to number gives 7  
(b) 9 taken from a number gives -3  
(c) 3 times a number is -21  
(d)  $\frac{1}{4}$  of a number is 2  
(e) 3 times a number added to 1 gives 10  
(f) 1 taken away from 7 times a number gives 13  
(g) 1 taken away from  $\frac{1}{4}$  of a number gives 5  
(h) 2 added to  $\frac{1}{10}$  of a number gives -5.

- (3) (a)  $3x = 9$   
 $\Rightarrow 3 \times 3 = 9$   
 $\Rightarrow 9 = 9$   
 $x = 3$  is a solution.

- (f)  $6x - 1 = 15$   
 $6 \times 3 - 1 = 15$

$$\Rightarrow 18 - 1 = 15$$

$$17 \neq 15$$

$x = 3$  is not a solution.

(4)(a)

$$y - 7 = 2 \quad (y = 9)$$

$$\Rightarrow 9 - 7 = 2$$

$$\Rightarrow 2 = 2$$

$y = 9$  is a solution.

(b)

$$\frac{x}{3} + 1 = 3 \quad (x = 6)$$

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

$$\Rightarrow 3 = 3$$

$x = 6$  is a solution.

(5)(a)

$$6x + 1 = 13$$

If  $x = 1$ , then  $6 \times 1 + 1 = 13$

$$\Rightarrow 6 + 1 = 13$$

$$\Rightarrow 7 \neq 13$$

If  $x = 2$ , then  $6 \times 2 + 1 = 13$

$$\Rightarrow 12 + 1 = 13$$

$$\Rightarrow 13 = 13$$

$\therefore x = 2$  is solution of given equation.

(6)(a)

$$3x - 3 = 48, \text{ where } x \text{ is age of daughter}$$

(b)

$$5x + 8 = 48, \text{ where } x \text{ is number of white beads.}$$

(c)

$$2x + 8 = 178, \text{ where } x \text{ is marks obtained in science}$$

(d)

$$12 + 2x = 64, \text{ where } x \text{ is number of girls.}$$



## Exercise 7.2

(1)

(a)

$$x - 7 = 8$$

Step I :- Add 7 to both sides.

$$\Rightarrow x - 7 + 7 = 8 + 7$$

$$\text{i.e. } x = 15$$

(b)

$$x + 9 = 15$$

Step I :- Subtract 9 from both sides.

$$\Rightarrow x + 9 - 9 = 15 - 9$$

$$\Rightarrow x = 6$$

(2)(a)

$$3x = 15$$

Step I :- ① Divide both sides by 3.

$$\Rightarrow \frac{3x}{3} = \frac{15}{3}$$

$$\Rightarrow x = 5$$

(b)

$$\frac{x}{3} = 9$$

Step I: Multiply both sides by 3.

$$\frac{x}{3} \times 3 = 9 \times 3$$

$$\Rightarrow x = 27$$

(4)(a)

$$9x - 1 = 35$$

$$\Rightarrow 9x = 35 + 1$$

$$\Rightarrow x = \frac{36}{9} = 4$$

$$\Rightarrow x = 4$$

(b)

$$7x + 3 = 24$$

$$\Rightarrow 7x = 24 - 3$$

$$\Rightarrow x = \frac{21}{7} = 3$$

$$\Rightarrow x = 3$$

(14)

### Exercise 7.3

$$(1)(a) \quad 2x + 3 = 1$$

$$\Rightarrow 2x = 1 - 3$$

$$\Rightarrow x = \frac{-2}{2} = -1$$

$$\Rightarrow x = -1$$

$$(b) \quad 3y - 7 = 4$$

$$\Rightarrow 3y = 4 + 7$$

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

$$(j) \quad \frac{7x}{8} + \frac{3}{8} = \frac{1}{4}$$

$$\Rightarrow \frac{7x}{8} = \frac{1}{4} - \frac{3}{8}$$

$$\Rightarrow \frac{7x}{8} = \frac{2-3}{8}$$

$$\Rightarrow \frac{7x}{8} = -\frac{1}{8}$$

$$\Rightarrow x = \frac{-1 \times 8}{8 \times 7} = -\frac{1}{7}$$

$$\Rightarrow x = -\frac{1}{7}$$

$$(2)(a) \quad 3(x-1) = 12$$

$$\Rightarrow 3x - 3 = 12$$

$$\Rightarrow 3x = 12 + 3$$

$$\Rightarrow x = \frac{15}{3} = 5$$

$$\Rightarrow x = 5$$

$$(f) \quad 17 - 4(x-5) = 39$$

$$\Rightarrow 17 - 4x + 20 = 39$$

$$\Rightarrow 37 - 4x = 39$$

$$\Rightarrow -4x = 39 - 37$$

$$\Rightarrow x = \frac{-2}{-4}$$

$$\begin{aligned}
 (3) (a) \quad & 2 + 3(x-3) = 14 \\
 & \Rightarrow 3(x-3) = 14 - 2 \\
 & \Rightarrow 3x - 9 = 12 \\
 & \Rightarrow 3x = 12 + 9 \\
 & \Rightarrow x = \frac{21}{3} = 7 \\
 & \Rightarrow x = 7
 \end{aligned}$$

$$\begin{aligned}
 (d) \quad & 35 = 9 + 13(x-1) \\
 & \Rightarrow 35 - 9 = 13(x-1) \\
 & \Rightarrow 26 = 13x - 13 \\
 & \Rightarrow 26 + 13 = 13x \\
 & \Rightarrow 13x = 39 \\
 & \Rightarrow x = \frac{39}{13} = 3 \\
 & \Rightarrow x = 3
 \end{aligned}$$

(4) (a) For  $x=5$ , three equations are,

$$4x + 3 = 23, \quad x + 0 = 5, \quad 3x - 1 = 14$$

(b) For  $x=-4$ , three equations are,

$$x + 4 = 0, \quad 2x + 9 = 1, \quad 3(x + 5) = 3$$

### Exercise 7.4

(1) (a) Let the number is  $x$

$$\begin{aligned}
 \therefore x + 8 &= 12 \\
 \Rightarrow x &= 12 - 8 \\
 \Rightarrow x &= 4
 \end{aligned}$$

(b) Let the number is  $x$ .

$$\begin{aligned}
 \therefore x - 11 &= -2 \\
 \Rightarrow x &= -2 + 11 \\
 \Rightarrow x &= 9
 \end{aligned}$$

(2)(a) Let age of Ali =  $x$  years  
Ali's age after 5 years will be 12  
i.e.  $x + 5 = 12$   
 $\Rightarrow x = 12 - 5 = 7$   
 $\Rightarrow x = 7$   
 $\therefore$  Present age of Ali = 7 years.

(b) Let present age of Sara be  $x$  years  
3 years ago, age of Sara = 21 years  
i.e.  $x - 3 = 21$   
 $\Rightarrow x = 21 + 3 = 24$  years  
Age of Sara = 24 years

(3) Cost of 3 pen + 1 note book = Rs 72  
Cost of note book = Rs 24  
Let cost of one pen = Rs  $x$ .  
According to problem,  
 $3x + 24 = 72$   
 $\Rightarrow 3x = 72 - 24$   
 $\Rightarrow x = 18$   
 $\therefore$  Cost of 1 pen = Rs 18.

(6) Let age of mother be  $x$  years  
 $\therefore$  Age of Tarun =  $\frac{1}{3}x$  years  
Sum of ages = 48  
i.e.  $x + \frac{1}{3}x = 48$   
 $\Rightarrow \frac{3x + x}{3} = 48$   
 $\Rightarrow 4x = 48 \times 3$   
 $\Rightarrow x = \frac{48 \times 3}{4} = 36$   
Age of Tarun =  $\frac{1}{3} \times 36 = 12$  years.



(7) Let the number of girls in the class be  $x$

$\therefore$  Number of boys =  $x + 11$

Total  $x + (x + 11) = 75$

$$\Rightarrow 2x = 75 - 11$$

$$\Rightarrow x = \frac{64}{2} = 32$$

Number of girls =  $x = 32$

Number of boys =  $75 - 32$  or  $32 + 11 = 43$

(8) Let two consecutive numbers be  $x$  &  $x + 1$  respectively

Sum =  $x + (x + 1) = 53$

$$\Rightarrow 2x = 53 - 1$$

$$\Rightarrow x = \frac{52}{2} = 26$$

Numbers are  $x$  &  $x + 1$

i.e.  $26$  &  $26 + 1 = 27$

(10) Let breadth of rectangle be  $x$  cm

Length =  $(x + 5)$  cm

Perimeter i.e.  $2(\text{length} + \text{breadth}) = 96$

$$\Rightarrow \text{length} + \text{breadth} = \frac{96}{2} = 48$$

$$\Rightarrow (x + 5) + x = 48$$

$$\Rightarrow 2x = 48 - 5$$

$$\Rightarrow x = \frac{43}{2} = 21.5 \text{ cm}$$

Breadth ( $x$ ) =  $21.5$  cm

Length ( $x + 5$ ) =  $(21.5 + 5)$  cm  
=  $26.5$  cm.

(11) We know that sum of angles of a triangle =  $180^\circ$

i.e.  $x + (x + 10) + 70 = 180$

$$\Rightarrow 2x + 80 = 180$$

$$\Rightarrow 2x = 180 - 80$$

$$\Rightarrow x = \frac{100}{2} = 50^\circ$$

Two angles  $x$  &  $x + 10$  i.e.  $50^\circ$  &  $60^\circ$  respectively.