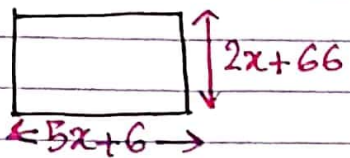
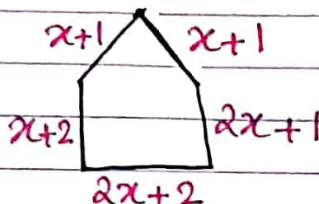


# VIII Homework - 14 (LINEAR EQUATIONS IN ONE VARIABLE)

- 1) Madhulika thought of a number, doubled it and added 20 to it. On dividing the resulting number by 25, she gets 4. What is the number?
- 2) On dividing Rs 200 between A and B such that twice of A's share is less than 3 times B's share by 200, B's share is?
- 3)  For what value of  $x$  is the perimeter of shape 186 cm?
- 4)  For what value of  $x$  is the perimeter of shape 77 cm?
- 5) Denominator of a number is 4 less than its numerator. If 6 is added to the numerator, it becomes thrice the denominator. Find the fraction.
- 6) A lady went to a bank with Rs 1,00,000. She asked the cashier to give her Rs 500 and Rs 1000 currency notes in return. She got 175 currency notes in all. Find the number of each kind of currency notes.
- 7) In a two digit number, digit in units place is twice the digit in tens place. If 27 is added to it, digits are reversed. Find the number.
- 8) If numerator is 2 less than denominator of a rational number and when 1 is subtracted from numerator and denominator both, the rational number in its simplest form is  $\frac{1}{2}$ . What is the rational number?
- 9) The age of A is five years more than that of B. 5 years ago, the ratio of their ages was 3:2. Find their present ages.
- 10) The sum of four consecutive integers is 266. What are the integers?
- 11) If  $\frac{1}{2}$  is subtracted from a number and the difference is multiplied by 4, the result is 5. What is the number?
- 12) Hamid has three boxes of different fruits. Box A weighs  $2\frac{1}{2}$  kg more than Box B and Box C weighs  $10\frac{1}{4}$  kg more than Box B. The total weight of the three boxes is  $48\frac{3}{4}$  kg. How many kilograms (kg) does Box A weigh?



VIII

## Homework-14 (LINEAR EQUATIONS IN ONE VARIABLE - Answers)

1) Let the number be  $x$ .

$$\text{Then, } \frac{2x+20}{25} = 4$$

$$\Rightarrow 2x+20 = 4 \times 25 = 100$$

$$\Rightarrow 2x = 100 - 20 = 80$$

$$\therefore x = \frac{80}{2} = \underline{\underline{40}}$$

Hence, the required number is 40

2) Let B's share be  $x$ .Then, A's share =  $200 - x$ 

$$\text{Thus, } 3x - 2(200 - x) = 200$$

$$\Rightarrow 3x - 400 + 2x = 200$$

$$\Rightarrow 5x = 200 + 400 = 600$$

$$\therefore x = \frac{600}{5} = \underline{\underline{120}}$$

Hence, B's share = ₹120

3) Perimeter of a rectangle =  $2(l+b)$ 

$$\Rightarrow 186 = 2(5x+6+2x+66)$$

$$\Rightarrow \frac{186}{2} = 7x + 72$$

$$\Rightarrow 7x + 72 = 93$$

$$\Rightarrow 7x = 93 - 72 = 21$$

$$\therefore x = \frac{21}{7} = \underline{\underline{3}}$$

Hence, the value of  $x = 3\text{cm}$ 4) Perimeter =  $x+1+x+2+2x+2+2x+1+x+1$ 

$$\Rightarrow 77 = 7x + 7$$

$$\Rightarrow 7x = 77 - 7 = 70$$

$$\therefore x = \frac{70}{7} = 10$$

Hence, the required value of  $x = 10\text{cm}$ 5) Let the numerator of the fraction be  $x$ .Then, the denominator =  $x - 4$ 

$$\text{Thus, } x + 6 = 3(x - 4)$$



$$\Rightarrow x+6 = 3x-12$$

$$\Rightarrow x-3x = -12-6$$

$$\Rightarrow -2x = -18$$

$$\therefore x = \frac{18}{2} = \underline{\underline{9}}$$

$$\text{Hence, the fraction} = \frac{x}{x-4} = \frac{9}{9-4} = \underline{\underline{\frac{9}{5}}}$$

6) Let the no. of Rs 500 notes be  $x$ ,

Then, no. of Rs 1000 notes =  $175-x$

$$\text{Thus, } 500x + 1000(175-x) = 100000$$

$$\Rightarrow 500x + 175000 - 1000x = 100000$$

$$\Rightarrow -500x = 100000 - 175000$$

$$\Rightarrow -500x = -75000$$

$$\therefore x = \frac{75000}{500} = \underline{\underline{150}}$$

Hence, no. of Rs 500 notes = 150

no. of Rs 1000 notes =  $175-150 = 25$

7) Let the digit in the ten's place be  $x$ .

Then, digit in the units' place =  $2x$

$$\text{Original number} = 10x + 2x \times 1$$

$$= 10x + 2x = 12x$$

$$\text{Reversed number} = 10 \times 2x + 1 \times x$$

$$= 20x + x = 21x$$

$$\therefore 12x + 27 = 21x$$

$$\Rightarrow 12x - 21x = -27$$

$$\Rightarrow -9x = -27$$

$$\therefore x = \frac{27}{9} = 3$$

Hence, the required number is 36

8) Let the denominator of rational number be  $x$ .

Then, numerator =  $x-2$

$\therefore$  The fraction is  $\frac{x-2}{x}$ .

$$\text{Thus, } \frac{x-2-1}{x-1} = \frac{1}{2}$$

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

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

$$\Rightarrow 2x-6 = x-1$$

$$\Rightarrow 2x-x = -1+6$$

$$\therefore x = 5$$

Hence, the required rational number =  $\frac{x-2}{x} = \frac{5-2}{5} = \frac{3}{5}$

9) Let the present age of B be  $x$  and age of A be  $(x+5)$  years.

5 years ago, B's age =  $x-5$

A's age =  $x+5-5 = x$

$$\text{Then, } \frac{x}{x-5} = \frac{3}{2}$$

$$\Rightarrow 2x = 3(x-5)$$

$$\Rightarrow 2x = 3x-15$$

$$\Rightarrow 2x-3x = -15$$

$$\therefore -x = -15$$

$$\underline{\underline{x = 15}}$$

Hence, present age of A =  $x+5 = 20$  years

present age of B =  $x = 15$  years

10) Let the four consecutive integers be  $x, x+1, x+2$  and  $x+3$ .

$$\text{Then, } x+x+1+x+2+x+3 = 266$$

$$\Rightarrow 4x+6 = 266$$

$$\Rightarrow 4x = 266-6 = 260$$

$$\therefore x = \frac{260}{4} = \underline{\underline{65}}$$

Hence, the required integers are 65, 66, 67 and 68.

11) Let the number be  $x$ .

$$\text{Then, } \left(x - \frac{1}{2}\right)4 = 5$$

$$4x = 5+2 = 7$$

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

$$\Rightarrow 4x - \frac{4}{2} = 5$$

$$\Rightarrow 4x - 2 = 5$$

Hence, the number =  $\frac{7}{4}$ .



12) Let the weight of Box B be  $x$  kg.  
Then, weight of Box A =  $x + 2\frac{1}{2} = (x + \frac{5}{2})$  kg

weight of Box C =  $x + 10\frac{1}{4} = (x + \frac{41}{4})$  kg

$$\therefore x + x + \frac{5}{2} + x + \frac{41}{4} = 48\frac{3}{4}$$

$$\Rightarrow 3x = \frac{195}{4} - \frac{5 \times 2}{2 \times 2} - \frac{41}{4}$$

$$\Rightarrow 3x = \frac{195 - 10 - 41}{4}$$

$$\Rightarrow 3x = \frac{144}{4}$$

$$\therefore x = \frac{36}{3} = 12$$

Hence, weight of Box A =  $12 + \frac{5}{2} = \frac{29}{2} = 14\frac{1}{2}$  kg