

General instructions for Students: Whatever be the notes provided, everything must be copied in the Mathematics copy and then do the HOMEWORK in the same copy.

**CLASS – 8      12. LINEAR EQUATIONS AND INEQUALITIES IN ONE VARIABLE      MATHS**

**Application of Linear Equations      Exercise – 12.2 (Part – I)**

2. When four consecutive integers are added, the sum is 46. Find the integers.

**Solution :** Let four consecutive integers are  $x$ ,  $x + 1$ ,  $x + 2$  and  $x + 3$

According to question,  $x + x + 1 + x + 2 + x + 3 = 46$

$$\Rightarrow 4x + 6 = 46$$

$$\Rightarrow 4x = 46 - 6$$

$$\Rightarrow 4x = 40 \Rightarrow x = 10$$

Hence, four consecutive integers are:

$$x = 10, x + 1 = 10 + 1 = 11, x + 2 = 10 + 2 = 12 \text{ and } x + 3 = 10 + 3 = 13 \text{ Ans.}$$

7. The denominator of a fraction is 1 more than twice its numerator. If the numerator and denominator are both increased by 5, it become  $\frac{3}{5}$ . Find the original fraction.

**Solution :** Let numerator be  $x$

According to question,  $\frac{x+5}{2x+1+5} = \frac{3}{5}$

$$\Rightarrow \frac{x+5}{2x+6} = \frac{3}{5}$$

$$\Rightarrow 5(x + 5) = 3(2x + 6)$$

$$\Rightarrow 5x + 25 = 6x + 18$$

$$\Rightarrow 5x - 6x = 18 - 25$$

$$\Rightarrow -x = -7$$

$$\Rightarrow x = 7$$

Hence, the original fraction =  $\frac{x}{2x+1} = \frac{7}{2(7)+1} = \frac{7}{15}$  **Ans.**

10. The digits of two – digit number differ by 3. If the digits are interchanged and the resulting number is added to the original number, we get 143. What can be the original number.

Solution : Let the unit's digit be  $x$  and ten's digit  $x - 3$

The original number  $10(x - 3) + x$

Digits are interchanged ,  $10x + x - 3$

According to question,  $10(x - 3) + x + 10x + x - 3 = 143$

$$\Rightarrow 10x - 30 + x + 10x + x - 3 = 143$$

$$\Rightarrow 22x - 33 = 143$$

$$\Rightarrow 22x = 143 + 33$$

$$\Rightarrow 22x = 173 \Rightarrow x = 8$$

$$\therefore \text{unit's digit} = 8 \text{ and ten's digit } x - 3 = 8 - 3 = 5$$

Hence, the original number = 58 **Ans.**

13. A father is 7 times as old as his son. Two years ago, the father was 13 times as old as his son. How old are they now ?

Solution : Let son's present age be  $x$  years and father's present age be  $7x$  years

According to question,  $13(x - 2) = 7x - 2$

$$\Rightarrow 13x - 26 = 7x - 2$$

$$\Rightarrow 13x - 7x = -2 + 26$$

$$\Rightarrow 6x = 24 \Rightarrow x = 4$$

Hence, son's present age is 4 years and father's present age is  $7(4) = 28$  years **Ans.**

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## HOMWORK

### EXERCISE – 12.2

QUESTION NUMBERS: 3, 5, 9, 11, 14 and 15

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