

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

EXERCISE – 12.1

Solve the following equations:

1(ii) $3x - 7 = 3(5 - x)$

Solution: $3x - 7 = 3(5 - x) \Rightarrow 3x - 7 = 15 - 3x$

$\Rightarrow 3x + 3x = 15 + 7$

$\Rightarrow 6x = 22$

$\Rightarrow x = \frac{22}{6} = \frac{11}{3}$ **Ans.**

3(ii) $0.3(6 - x) = 0.4(x + 8)$

Solution: $0.3(6 - x) = 0.4(x + 8) \Rightarrow 18 - 3x = 4x + 32$

$\Rightarrow -3x - 4x = 32 - 18$

$\Rightarrow -7x = 14$

$\Rightarrow x = -2$ **Ans.**

6(i) $n - \frac{n-1}{2} = 1 - \frac{n-2}{3}$

Solution: $n - \frac{n-1}{2} = 1 - \frac{n-2}{3} \Rightarrow \frac{n}{1} - \frac{n-1}{2} + \frac{n-2}{3} = 1$ **LCM (1, 2, 3) = 6**

$\Rightarrow \frac{6n - 3(n-1) + 2(n-2)}{6} = 1$

$\Rightarrow 6n - 3n + 3 + 2n - 4 = 6$

$\Rightarrow 8n - 3n = 6 + 1$

$\Rightarrow 5n = 7$

$\Rightarrow n = \frac{7}{5} = 1\frac{2}{5}$ **Ans.**

$$10(i) \frac{2x+5}{2} - \frac{5x}{x-1} = x$$

$$\begin{aligned} \text{Solution: } \frac{2x+5}{2} - \frac{5x}{x-1} = x &\Rightarrow \frac{(x-1)(2x+5) - 2(5x)}{2(x-1)} = x \\ &\Rightarrow \frac{2x^2 + 5x - 2x - 5 - 10x}{2x-1} = x \\ &\Rightarrow 2x^2 - 7x - 5 = 2x^2 - 2x \\ &\Rightarrow -7x + 2x = 5 \Rightarrow -5x = 5 \\ &\Rightarrow x = -1 \quad \text{Ans.} \end{aligned}$$

12 If $x = p + 1$, find the value of p from the equation

$$\frac{1}{2}(5x - 30) - \frac{1}{3}(1 + 7p) = \frac{1}{4}$$

$$\begin{aligned} \text{Solution: } \frac{1}{2}(5x - 30) - \frac{1}{3}(1 + 7p) = \frac{1}{4} &\Rightarrow \frac{1}{2}\{5(p+1) - 30\} - \frac{1}{3}(1 + 7p) = \frac{1}{4} \\ &\Rightarrow \frac{1}{2}(5p + 5 - 30) - \frac{1}{3}(1 + 7p) = \frac{1}{4} \\ &\Rightarrow \frac{1}{2}(5p - 25) - \frac{1}{3}(1 + 7p) = \frac{1}{4} \\ &\Rightarrow \frac{3(5p-25) - 2(1+7p)}{6} = \frac{1}{4} \\ &\Rightarrow 15p - 75 - 2 - 14p = \frac{6}{4} \\ &\Rightarrow p = \frac{3}{2} + 77 = \frac{3+154}{2} = \frac{157}{2} = 78\frac{1}{2} \quad \text{Ans.} \end{aligned}$$

HOMEWORK

EXERCISE – 12.1

QUESTION NUMBERS: 2(i), (ii); 3(i), (ii); 5(i), (ii); 7(i), 9(i), (ii) and 11(i)
