

CBSE Class –VIII Mathematics
NCERT Solutions
CHAPTER - 2
Linear Equations in One Variable (Ex. 2.3)

Solve the following equations and check your results.

1. $3x = 2x + 18$

Ans. $3x = 2x + 18$

$$\Rightarrow 3x - 2x = 18$$

$$\Rightarrow x = 18$$

To check:

$$3x = 2x + 18$$

$$\Rightarrow 3 \times 18 = 2 \times 18 + 18$$

$$\Rightarrow 54 = 36 + 18$$

$$\Rightarrow 54 = 54$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence, it is correct.

2. $5t - 3 = 3t - 5$

Ans. $5t - 3 = 3t - 5$

$$\Rightarrow 5t - 3t = -5 + 3$$

$$\Rightarrow 2t = -2$$

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

To check:

$$5t - 3 = 3t - 5$$

$$\Rightarrow 5 \times (-1) - 3 = 3 \times (-1) - 5$$

$$\Rightarrow -5 - 3 = -3 - 5$$

$$\Rightarrow -8 = -8$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence, it is correct.

3. $5x + 9 = 5 + 3x$

Ans. $5x + 9 = 5 + 3x$

$$\Rightarrow 5x - 3x = 5 - 9$$

$$\Rightarrow 2x = -4$$

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

To check:

$$5x + 9 = 5 + 3x$$

$$\Rightarrow 5 \times (-2) + 9 = 5 + 3 \times (-2)$$

$$\Rightarrow -10 + 9 = 5 - 6$$

$$\Rightarrow -1 = -1$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence, it is correct.

4. $4z + 3 = 6 + 2z$

Ans. $4z + 3 = 6 + 2z$

$$\Rightarrow 4z - 2z = 6 - 3$$

$$\Rightarrow 2z = 3$$

$$\Rightarrow z = \frac{3}{2}$$

To check:

$$4z + 3 = 6 + 2z$$

$$\Rightarrow 4 \times \frac{3}{2} + 3 = 6 + 2 \times \frac{3}{2}$$

$$\Rightarrow 2 \times 3 + 3 = 6 + 3$$

$$\Rightarrow 6 + 3 = 9$$

$$\Rightarrow 9 = 9$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence, it is correct.

5. $2x - 1 = 14 - x$

Ans. $2x - 1 = 14 - x$

$$\Rightarrow 2x + x = 14 + 1$$

$$\Rightarrow 3x = 15$$

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

To check:

$$2x - 1 = 14 - x$$

$$\Rightarrow 2 \times 5 - 1 = 14 - 5$$

$$\Rightarrow 10 - 1 = 9$$

$$\Rightarrow 9 = 9$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence, it is correct.

6. $8x + 4 = 3(x - 1) + 7$

Ans. $8x + 4 = 3(x - 1) + 7$

$$\Rightarrow 8x + 4 = 3x - 3 + 7$$

$$\Rightarrow 8x - 3x = -3 + 7 - 4$$

$$\Rightarrow 5x = 0$$

$$\Rightarrow x = \frac{0}{5} = 0$$

To check:

$$8x + 4 = 3(x - 1) + 7$$

$$\Rightarrow 8 \times 0 + 4 = 3(0 - 1) + 7$$

$$\Rightarrow 0 + 4 = 3 \times (-1) + 7$$

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

$$\Rightarrow 4 = 4$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence, it is correct.

$$7. x = \frac{4}{5}(x+10)$$

$$\text{Ans. } x = \frac{4}{5}(x+10)$$

$$\Rightarrow 5x = 4(x+10)$$

$$\Rightarrow 5x = 4x + 40$$

$$\Rightarrow 5x - 4x = 40$$

$$\Rightarrow x = 40$$

To check:

$$x = \frac{4}{5}(x+10)$$

$$\Rightarrow 40 = \frac{4}{5}(40+10)$$

$$\Rightarrow 40 = \frac{4}{5} \times 50$$

$$\Rightarrow 40 = 4 \times 10$$

$$\Rightarrow 40 = 40$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence, it is correct.

$$8. \frac{2x}{3} + 1 = \frac{7x}{15} + 3$$

$$\text{Ans. } \frac{2x}{3} + 1 = \frac{7x}{15} + 3$$

$$\Rightarrow \frac{2x}{3} - \frac{7x}{15} = 3 - 1$$

$$\Rightarrow \frac{10x - 7x}{15} = 2$$

$$\Rightarrow 3x = 30$$

$$\Rightarrow x = \frac{30}{3} = 10$$

To check:

$$\frac{2x}{3} + 1 = \frac{7x}{15} + 3$$

$$\Rightarrow \frac{2 \times 10}{3} + 1 = \frac{7 \times 10}{15} + 3$$

$$\Rightarrow \frac{20}{3} + 1 = \frac{14}{3} + 3$$

$$\Rightarrow \frac{20 + 3}{3} = \frac{14 + 9}{3}$$

$$\Rightarrow \frac{23}{3} = \frac{23}{3}$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence, it is correct.

9. $2y + \frac{5}{3} = \frac{26}{3} - y$

Ans. $2y + \frac{5}{3} = \frac{26}{3} - y$

$$\Rightarrow 2y + y = \frac{26}{3} - \frac{5}{3}$$

$$\Rightarrow 3y = \frac{26-5}{3}$$

$$\Rightarrow 3y = \frac{21}{3}$$

$$\Rightarrow y = \frac{21}{3 \times 3} = \frac{7}{3}$$

To check:

$$2y + \frac{5}{3} = \frac{26}{3} - y$$

$$\Rightarrow 2 \times \frac{7}{3} + \frac{5}{3} = \frac{26}{3} - \frac{7}{3}$$

$$\Rightarrow \frac{14}{3} + \frac{5}{3} = \frac{26}{3} - \frac{7}{3}$$

$$\Rightarrow \frac{14+5}{3} = \frac{26-7}{3}$$

$$\Rightarrow \frac{19}{3} = \frac{19}{3}$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence, it is correct.

10. $3m = 5m - \frac{8}{5}$

Ans. $3m = 5m - \frac{8}{5}$

$$\Rightarrow 3m - 5m = \frac{-8}{5}$$

$$\Rightarrow -2m = \frac{-8}{5}$$

$$\Rightarrow m = \frac{-8}{5 \times (-2)}$$

$$\Rightarrow m = \frac{4}{5}$$

To check:

$$3m = 5m - \frac{8}{5}$$

$$\Rightarrow 3 \times \frac{4}{5} = 5 \times \frac{4}{5} - \frac{8}{5}$$

$$\Rightarrow \frac{12}{5} = 4 - \frac{8}{5}$$

$$\Rightarrow \frac{12}{5} = \frac{20 - 8}{5}$$

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

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence, it is correct.