Solve the following equations and check your results.

Q1. $3x = 2x + 18$

Ans: $3x = 2x + 18$

$\Rightarrow 3x - 2x = 18$

$\Rightarrow x = 18$

To check:

$3x = 2x + 18$

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

$\Rightarrow 54 = 36 + 18$

$\Rightarrow 54 = 54$

$\Rightarrow$ L.H.S. = R.H.S.

Hence, it is correct.

Q2. $5t - 3 = 3t - 5$

Ans: $5t - 3 = 3t - 5$

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

$\Rightarrow 2t = -2$

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

To check:

$5t - 3 = 3t - 5$

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

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

$\Rightarrow -8 = -8$

$\Rightarrow$ L.H.S. = R.H.S.

Hence, it is correct.

Q3. $5x + 9 = 5 + 3x$

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

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

$\Rightarrow 2x = -4$

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

To check:

$5x + 9 = 5 + 3x$

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

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

$\Rightarrow -1 = -1$

$\Rightarrow$ L.H.S. = R.H.S.

Hence, it is correct.

Q4. $4z + 3 = 6 + 2z$

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

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

$\Rightarrow 2z = 3$

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

To check:

$4z + 3 = 6 + 2z$

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

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

$\Rightarrow 6 + 3 = 9$

$\Rightarrow 9 = 9$

$\Rightarrow$ L.H.S. = R.H.S.

Hence, it is correct.

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

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

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

$\Rightarrow 3x = 15$

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

To check:

$2x - 1 = 14 - x$

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

$\Rightarrow 10 - 1 = 9$

$\Rightarrow 9 = 9$

$\Rightarrow$ L.H.S. = R.H.S.

Hence, it is correct.

Q6. $8x + 4 = 3(x - 1) + 7$

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.

Q7. $x = \dfrac{4}{5}(x + 10)$

Ans: $x = \dfrac{4}{5}(x + 10)$

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

$\Rightarrow 5x = 4x+40$

$\Rightarrow 5x-4x = 40$

$\Rightarrow x = 40$

To check:

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

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

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

$\Rightarrow 40 = 4 \times 10$

$\Rightarrow 40 = 40$

$\Rightarrow$ L.H.S. = R.H.S.

Hence, it is correct.

Q8. $\dfrac{2x}{3}+1 = \dfrac{7x}{15}+3$

Ans: $\dfrac{2x}{3}+1 = \dfrac{7x}{15}+3$

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

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

$$\Rightarrow 3x = 30$$

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

To check:

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

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

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

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

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

$\Rightarrow$ L.H.S. = R.H.S.

Hence, it is correct.

Q9. $2y + \dfrac{5}{3} = \dfrac{26}{3} - y$

Ans: $2y + \dfrac{5}{3} = \dfrac{26}{3} - y$

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

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

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

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

To check:

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

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

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

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

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

$\Rightarrow$ L.H.S. = R.H.S.

Hence, it is correct.

Q10. $3m = 5m - \dfrac{8}{5}$

Ans: $3m = 5m - \dfrac{8}{5}$

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

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

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

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

To check:

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

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

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

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

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

$\Rightarrow$ L.H.S. = R.H.S.

Hence, it is correct.

********** END *********