NCERT SOLUTIONS FOR CLASS 8 MATHS LINEAR EQUATION IN ONE VARIABLE EX-2.3

**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:

$3x = 2x+18$

$\Rightarrow\ 3\times18 = 2\times18+18$

$\Rightarrow\ 54 = 36+18$

$\Rightarrow$ 54 = 54

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

Hence, it is correct.

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

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

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

$\Rightarrow\ 2t = -2$

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

To check:

$5t-3=3t-5$

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

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

$\Rightarrow\ -8=-8$

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

Hence, it is correct.

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

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

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

$\Rightarrow\ 2x=-4$

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

To check:

$5x+9=5+3x$

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

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

$\Rightarrow -1=-1$

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

Hence, it is correct.

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

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

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

$\Rightarrow 2z=3$

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

To check:

$4z+3=6+2z$

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

$\Rightarrow 2\times3+3=6+3$

$\Rightarrow 6+3=9$

$\Rightarrow 9=9$

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

Hence, it is correct.

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

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

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

$\Rightarrow 3x=15$

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

To check:

$2x-1=14-x$

$\Rightarrow 2\times5-1=14-5$

$\Rightarrow 10-1=9$

$\Rightarrow 9=9$

$\Rightarrow$ 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:

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

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

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

$\Rightarrow\ 4=-3+7$

$\Rightarrow\ 4=4$

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

Hence, it is correct.

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

**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

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

Hence, it is correct.

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

**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:

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

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

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

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

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

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

Hence, it is correct.

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

**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:

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

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

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

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

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

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

Hence, it is correct.

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

**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:

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

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

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

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

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

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

Hence, it is correct.

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