



Exercise 9B

$$\begin{aligned}\frac{2x}{5} - \frac{3}{2} &= \frac{x}{2} + 1 \\ \text{or, } \frac{2x}{5} - \frac{x}{2} &= 1 + \frac{3}{2} && [\text{Transposing } x/2 \text{ to the L.H.S. and } 3/2 \text{ to R.H.S.}] \\ \text{or, } \frac{4x-5x}{10} &= \frac{2+3}{2} \\ \text{or, } \frac{-x}{10} &= \frac{5}{2} \\ \text{or, } \frac{x}{10}(-10) &= \frac{5}{2} \times (-10) && [\text{Multiplying both the sides by } -10] \\ \text{or, } x &= -25 \\ \text{Verification:} \\ \text{Substituting } x &= -25 \text{ on both the sides:} \\ \text{L.H.S.: } \frac{2(-25)}{5} - \frac{3}{2} &= \frac{-50}{5} - \frac{3}{2} \\ &= -10 - \frac{3}{2} = \frac{-23}{2} \\ \text{R.H.S.: } \frac{-25}{2} + 1 &= \frac{-25+2}{2} = \frac{-23}{2} \\ \text{L.H.S.} &= \text{R.H.S.} \\ \text{Hence, verified.}\end{aligned}$$

Q24

Answer :

$$\begin{aligned}\frac{x-3}{5} - 2 &= \frac{2x}{5} \\ \text{or, } \frac{x}{5} - \frac{3}{5} - 2 &= \frac{2x}{5} \\ \text{or, } -\frac{3}{5} - 2 &= \frac{2x}{5} - \frac{x}{5} && [\text{Transposing } x/5 \text{ to the R.H.S.}] \\ \text{or, } \frac{-3-10}{5} &= \frac{x}{5} \\ \text{or, } \frac{-13}{5} &= \frac{x}{5} \\ \text{or, } \frac{-13}{5}(5) &= \frac{x}{5} \times (5) && [\text{Multiplying both the sides by } 5] \\ \text{or, } x &= -13 \\ \text{Verification:} \\ \text{Substituting } x &= -13 \text{ on both the sides:} \\ \text{L.H.S.: } \frac{-13-3}{5} - 2 &= \frac{-16-10}{5} = \frac{-26}{5} \\ \text{R.H.S.: } \frac{2 \times (-13)}{5} &= \frac{-26}{5}\end{aligned}$$

L.H.S. = R.H.S.
Hence, verified.

Q25

Answer :

$$\begin{aligned}\frac{3x}{10} - 4 &= 14 \\ \text{or, } \frac{3x}{10} - 4 + 4 &= 14 + 4 && \text{[Adding 4 on both the sides]} \\ \text{or, } \frac{3x}{10} &= 18 \\ \text{or, } \frac{3x}{10} \times 10 &= 18 \times 10 && \text{[Multiplying both the sides by 10]} \\ \text{or, } 3x &= 180 \\ \text{or, } \frac{3x}{3} &= \frac{180}{3} && \text{[Dividing both the sides by 3]} \\ \text{or, } x &= 60\end{aligned}$$

Verification:

Substituting $x = 60$ on both the sides:

$$\begin{aligned}\frac{3 \times 60}{10} - 4 \\ = \frac{180}{10} - 4 = 18 - 4 = 14 = R.H.S.\end{aligned}$$

L.H.S. = R.H.S.
Hence, verified.

Q26

Answer :

$$\begin{aligned}\frac{3}{4}(x-1) &= x-3 \\ \Rightarrow \frac{3}{4} \times x - \frac{3}{4} \times 1 &= x-3 && \text{[On expanding the brackets]} \\ \Rightarrow \frac{3x}{4} - \frac{3}{4} &= x-3 \\ \Rightarrow \frac{3x}{4} - x &= -3 + \frac{3}{4} && \text{[Transposing } x \text{ to the L.H.S. and } -\frac{3}{4} \text{ to the R.H.S.]} \\ \Rightarrow \frac{3x-4x}{4} &= \frac{-12+3}{4} \\ \Rightarrow \frac{-x}{4} &= \frac{-9}{4} \\ \Rightarrow \frac{-x}{4} \times (-4) &= \frac{-9}{4} \times (-4) && \text{[Multiplying both the sides by -4]} \\ \text{or, } x &= 9\end{aligned}$$

Verification:

Substituting $x = 9$ on both the sides:

$$L.H.S. : \frac{3}{4}(9-1)$$

$$= \frac{3}{4}(8)$$

$$= 6$$

$$R.H.S.: 9 - 3 = 6$$

L.H.S. = R.H.S.

Hence, verified.

***** END *****