Linear Equations in One Variable Ex 9.2 Q11

Answer :

$$\frac{3x}{4}-\frac{x-1}{2}=\frac{x-2}{3}$$

$$\text{or } \frac{3x-2x+2}{4}=\frac{x-2}{3}$$

$$\text{or } 4x-8=3x+6$$

$$\text{or } x=14$$

Check :

$$\text{L.H.S.}=\frac{3\times 14}{4}-\frac{14-1}{2}=\frac{21}{2}-\frac{13}{2}=\frac{8}{2}=4$$

$$\text{R.H.S.}=\frac{14-2}{3}=\frac{12}{3}=4$$

$\therefore$ L.H.S. = R.H.S. for $x = 14$

Linear Equations in One Variable Ex 9.2 Q12

Answer :

$$\frac{5x}{3}-\frac{x-1}{4}=\frac{x-3}{5}$$

$$\text{or } \frac{20x-3x+3}{12}=\frac{x-3}{5}$$

$$\text{or } \frac{17x+3}{12}=\frac{x-3}{5}$$

$$\text{or } 85x+15=12x-36$$

$$\text{or } 73x=-51$$

$$\text{or } x=\frac{-51}{73}$$

Check :

$$\text{L.H.S.}=\frac{5\times\frac{-51}{73}}{3}-\frac{\frac{-51}{73}-1}{4}=\frac{-255}{219}-\frac{-124}{292}=\frac{-54}{73}$$

$$\text{R.H.S.}=\frac{\frac{-51}{73}-3}{5}=\frac{-54}{73}$$

$\therefore$ L.H.S. = R.H.S. for $x=\frac{-51}{73}$

Linear Equations in One Variable Ex 9.2 Q13

Answer :

$$\frac{3x+1}{16}+\frac{2x-3}{7}=\frac{x+3}{8}+\frac{3x-1}{14}$$

$$\text{or } \frac{3x+1}{16}-\frac{x+3}{8}=\frac{3x-1}{14}-\frac{2x-3}{7}$$

$$\text{or } \frac{3x+1-2x-6}{16}=\frac{3x-1-4x+6}{14}$$

$$\text{or } \frac{x-5}{8}=\frac{-x+5}{7}$$

$$\text{or } 7x-35=-8x+40$$

$$\text{or } 15x=75$$

$$\text{or } x=\frac{75}{15}=5$$

Check :

$$\text{L.H.S.}=\frac{3\times5+1}{16}+\frac{2\times5-3}{7}=\frac{16}{16}+\frac{7}{7}=2$$

$$\text{R.H.S.}=\frac{5+3}{8}+\frac{3\times5-1}{14}=\frac{8}{8}+\frac{14}{14}=2$$

$\therefore$ L.H.S. = R.H.S. for $x = 5$

Linear Equations in One Variable Ex 9.2 Q14

Answer :

$$\frac{1-2x}{7}-\frac{2-3x}{8}=\frac{3}{2}+\frac{x}{4}$$

$$\text{or } \frac{1-2x}{7}=\frac{3}{2}+\frac{x}{4}+\frac{2-3x}{8}$$

$$\text{or } \frac{1-2x}{7}=\frac{12+2x+2-3x}{8}$$

$$\text{or } \frac{1-2x}{7}=\frac{14-x}{8}$$

$$\text{or } 8-16x=98-7x$$

$$\text{or } -16x+7x=98-8$$

$$\text{or } x=\frac{-90}{9}$$

$$=-10$$

Check :

$$\text{L.H.S.}=\frac{1-2\times(-10)}{7}-\frac{2-3\times(-10)}{8}=\frac{1+20}{7}-\frac{2+30}{8}=3-4=-1$$

$$\text{R.H.S.}=\frac{3}{2}+\frac{-10}{4}=\frac{3}{2}+\frac{-5}{2}=\frac{3-5}{2}=-1$$

$\therefore$ L.H.S. = R.H.S. for $x = -10$

Linear Equations in One Variable Ex 9.2 Q15

Answer :

$\frac{9x+7}{2} - \left(x - \frac{x-2}{7}\right) = 36$

or $\frac{63x+49-14x+2x-4}{14} = 36$

or $\frac{51x+45}{14} = 36$

or $51x + 45 = 504$

or $51x = 504 - 45$

or $x = \frac{459}{51} = 9$

Thus, $x = 9$ is the solution of the given equation.

Check :

Substituting $x = 9$ in the given equation, we get :

$L.H.S. = \frac{9\times9+7}{2} - \left(9 - \frac{9-2}{7}\right) = \frac{88}{2} - 9 + \frac{7}{7} = 44 - 9 + 1 = 36$

$R.H.S. = 36$

$\therefore$ L.H.S. = R.H.S. for $x = 9$.

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