Linear Equations in One Variable Ex 9.2 Q6

Answer :

$\frac{3}{4}x+4x=\frac{7}{8}+6x-6$

or $\frac{3}{4}x-2x=\frac{7}{8}-6$

or $\frac{3x-8x}{4}=\frac{7-48}{8}$

or $\frac{-5x}{4}=\frac{-41}{8}$

or $-40x=-164$

or $x=\frac{-164}{-40}=\frac{41}{10}$

Check :

$L.H.S.=\frac{3}{4}\times\frac{41}{10}+4\times\frac{41}{10}=\frac{123}{40}+\frac{164}{10}=\frac{123+656}{40}=\frac{779}{40}$

$R.H.S.=\frac{7}{8}+6\times\frac{41}{10}-6=\frac{7}{8}+\frac{246}{10}-6=\frac{35+984-240}{40}=\frac{779}{40}$

$\therefore$ L.H.S. = R.H.S. for $x=\frac{41}{10}$

Linear Equations in One Variable Ex 9.2 Q7

Answer :

$\frac{7}{2}x-\frac{5}{2}x=\frac{20}{3}x+10$

or $\frac{7x-5x}{2}=\frac{20x+30}{3}$

or $40x+60=6x$

or $34x=-60$

or $x=-\frac{60}{34}=-\frac{30}{17}$

Check :

$L.H.S.=\frac{7}{2}\times\frac{-30}{17}-\frac{5}{2}\times-\frac{30}{17}=-\frac{30}{17}$

$R.H.S.=\frac{20}{3}\times\frac{-30}{17}+10=-\frac{30}{17}$

$\therefore L.H.S.=R.H.S.$ for $x=-\frac{30}{17}$

Linear Equations in One Variable Ex 9.2 Q8

Answer :

$$\frac{6x+1}{2}+1=\frac{7x-3}{3}$$

$$\text{or } \frac{6x+1+2}{2}=\frac{7x-3}{3}$$

$$\text{or } 18x+9=14x-6$$

$$\text{or } 18x-14x=-6-9$$

$$\text{or } 4x=-15$$

$$\text{or } x=\frac{-15}{4}$$

Check :

$$\text{L.H.S.}=\frac{6\times\frac{-15}{4}+1}{2}+1=\frac{-45+2+4}{4}=\frac{-39}{4}$$

$$\text{R.H.S.}=\frac{7\times\frac{-15}{4}-3}{3}=\frac{-105-12}{12}=\frac{-39}{4}$$

$\therefore$ L.H.S. = R.H.S. for $x = \frac{-15}{4}$

Linear Equations in One Variable Ex 9.2 Q9

Answer :

$$\frac{3a-2}{3}+\frac{2a+3}{2}=a+\frac{7}{6}$$

$$\text{or } \frac{6a-4+6a+9}{6}=a+\frac{7}{6}$$

$$\text{or } 12a+5=6a+7$$

$$\text{or } 6a=7-5$$

$$\text{or } a=\frac{2}{6}=\frac{1}{3}$$

Check :

$$\text{L.H.S.}=\frac{3\times\frac{1}{3}-2}{3}+\frac{2\times\frac{1}{3}+3}{2}=\frac{-1}{3}+\frac{11}{6}=\frac{9}{6}=\frac{3}{2}$$

$$\text{R.H.S.}=\frac{1}{3}+\frac{7}{6}=\frac{9}{6}=\frac{3}{2}$$

$\therefore$ L.H.S. = R.H.S. for $a = \frac{1}{3}$

Linear Equations in One Variable Ex 9.2 Q10

Answer :

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

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

$$\text{or } \frac{x+1}{2} = \frac{5-x}{3}$$

$$\text{or } 3x + 3 = 10 - 2x$$

$$\text{or } 5x = 10 - 3$$

$$\text{or } x = \frac{7}{5}$$

Check :

$$\text{L.H.S.} = \frac{7}{5} - \frac{\frac{7}{5}-1}{2} = \frac{7}{5} - \frac{1}{5} = \frac{6}{5}$$

$$\text{R.H.S.} = 1 - \frac{\frac{7}{5}-2}{3} = 1 - \frac{-3}{15} = \frac{6}{5}$$

$\therefore$ L.H.S. = R.H.S. for $x = \frac{7}{5}$

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