

Exercise 7A

$$=\frac{\frac{3}{2}}{\frac{2}{4}}$$
 $=\frac{4}{3}$

: LHS=RHS

Hence, x=2 is a solution of the given equation.

Q16

Answer:

We have:

We have.
$$\frac{3x-1}{5} - \frac{x}{7} = 3$$

$$\Rightarrow \frac{7(3x-1)-5\times x}{35} = 3$$

$$\Rightarrow \left(\frac{21x-7-5x}{35}\right) = 3$$

$$\Rightarrow \left(\frac{16x-7}{35}\right) = 3$$

$$\Rightarrow 16x - 7 = 3 \times 35$$

$$\Rightarrow 16x - 7 = 105$$

$$\Rightarrow 16x = 105 + 7$$

$$\Rightarrow 16x = 112$$

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

$$\Rightarrow x = 7$$
(Transposing 35 to RHS)

CHECK: Substituting x=7 in the given equation, we get:

LHS=
$$\frac{3x-1}{5} - \frac{x}{7}$$

= $\frac{7(3x-1)-5 \times x}{35}$

$$= \left(\frac{21x - 7 - 5x}{35}\right)$$

$$= \left(\frac{16x - 7}{35}\right)$$

$$= \left(\frac{16 \times 7 - 7}{35}\right)$$

$$= \frac{112 - 7}{35}$$

$$= \frac{1 \cdot 0 \cdot 5^{3}}{3 \cdot 5^{1}}$$

$$= 3$$

RHS=3

::LHS=RHS

Hence, x=3 is a solution of the given equation.

Q17

Answer:

We have:

$$2x - 3 = \frac{3}{10} \left(5x - 12 \right)$$

$$\Rightarrow 10(2x - 3) = 3(5x - 12)$$

$$\Rightarrow 20x - 30 = 15x - 36$$

$$\Rightarrow 20x - 15x = -36 + 30$$
 (Transposing 15x to LHS and -30 to RHS)
$$\Rightarrow 5x = -6$$

$$\Rightarrow x = \frac{-6}{5}$$

CHECK: Substituting $x = \frac{-6}{5}$ in the given equation, we get:

LHS=
$$2x - 3$$

= $2 \times \left(\frac{-6}{5}\right) - 3$
= $\frac{-12}{5} - 3$

$$= \frac{-12 - (3 \times 5)}{5}$$

$$= \frac{-12 - 15}{5}$$

$$= \frac{-27}{5}$$

RHS=
$$\frac{3}{10} \left(5x - 12 \right)$$

$$= \frac{3}{10} \left(\frac{5}{5}^{1} \times \frac{-6}{5^{1}} - 12 \right)$$

$$= \frac{3}{10} \times \left(-18 \right)$$

$$= \frac{3}{10} \times \left$$

:: LHS=RHS

Hence, $x = \frac{-6}{5}$ is a solution of the given equation.

Q18

Answer:

We have:
$$\frac{y-1}{3} - \frac{y-2}{4} = 1$$

$$\Rightarrow \frac{4(y-1)-3(y-2)}{12} = 1$$

$$\Rightarrow \left(\frac{4y-4-3y+6}{12}\right) = 1$$

$$\Rightarrow \left(\frac{y+2}{12}\right) = 1$$

$$\Rightarrow y+2 = 1 \times 12$$

$$\Rightarrow y = 12 - 2$$

$$\Rightarrow y = 10$$

CHECK: Substituting y=10 in the given equation, we get:

LHS=
$$\frac{y-1}{3} - \frac{y-2}{4}$$
= $\frac{4(y-1)-3(y-2)}{12}$
= $\left(\frac{y+2}{12}\right)$
= $\left(\frac{10+2}{12}\right)$
= $\frac{1-2}{12}$
=1

RHS=1

:: LHS=RHS

Hence, y=10 is a solution of the given equation.

Q19

Answer:

We have:
$$\frac{x-2}{4} + \frac{1}{3} = x - \frac{2x-1}{3}$$

$$\Rightarrow \frac{x-2}{4} + \frac{2x-1}{3} - x = -\frac{1}{3} \qquad \left(\text{Transposing} - \frac{2x-1}{3} \text{ to LHS and } \frac{1}{3} \text{ to RHS} \right)$$

$$\Rightarrow \left(\frac{3(x-2)+4(2x-1)-12x}{12} \right) = -\frac{1}{3}$$

$$\Rightarrow \left(\frac{3x-6+8x-4-12x}{12} \right) = -\frac{1}{3}$$

$$\Rightarrow 11x - 12x - 10 = -\frac{1}{3} \times \frac{1-2}{3} \times \frac{1}{3} \times \frac{$$

CHECK: Substituting x=-6 in the given equation, we get:

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

= $\frac{-6-2}{4} + \frac{1}{3}$
= $-2 + \frac{1}{3}$
= $\frac{-5}{3}$
RHS= $x - \frac{2x-1}{3}$
= $-6 - \frac{2 \times (-6) - 1}{3}$
= $-6 + \frac{13}{3}$
= $\frac{-5}{3}$

:: LHS=RHS

Hence, y=10 is a solution of the given equation.

Q20

Answer:

We have:

$$\frac{2x-1}{3} - \frac{6x-2}{5} = \frac{1}{3}$$

$$\Rightarrow \frac{5(2x-1)-3(6x-2)}{15} = \frac{1}{3}$$

$$\Rightarrow \frac{10x-5-18x+6}{15} = \frac{1}{3}$$

$$\Rightarrow \frac{-8x+1}{15} = \frac{1}{3}$$

$$\Rightarrow -8x+1 = \frac{1}{3} \times 15$$

$$\Rightarrow -8x = 5 - 1$$

$$\Rightarrow -x = \frac{4}{8}$$

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

CHECK: Substituting $x=-\frac{1}{2}$ in the given equation, we get:

LHS=
$$\frac{2x-1}{3} - \frac{6x-2}{5}$$

$$= \frac{-8x+1}{15}$$

$$= \frac{-8 \times \left(-\frac{1}{2}\right) + 1}{15}$$

$$= \frac{5}{15}$$

$$= \frac{1}{3}$$
RHS=
$$\frac{1}{3}$$

$$\therefore LHS=RHS$$

:: LHS=RHS

Hence, $y=-\frac{1}{2}$ is a solution of the given equation.

Q21

Answer:

We have:
$$\frac{y+7}{3} = 1 + \frac{3y-2}{5}$$

$$\Rightarrow \frac{y+7}{3} = \frac{5 \times 1 + 3y-2}{5}$$

$$\Rightarrow 5(y+7) = 3(3+3y)$$

$$\Rightarrow 5y+35 = 9+9y$$

$$\Rightarrow 9y-5y = 35-9$$

$$\Rightarrow 4y = 26$$

$$\Rightarrow y = \frac{13}{2}$$

CHECK: Substituting $x=\frac{13}{2}$ in the given equation, we get:

LHS=
$$\frac{y+7}{3}$$