

11-9-2024

Unit 5

Math

Ex: 5.31

i) $5x - 2 - 4 = 4 - 3x - 27$

$5x - x + 3x = 4 - 27 + 2$

$7x = -21$

$\frac{7x}{7} = \frac{-21}{7}$

$x = -3$ Ans.

5) $\frac{x-2}{2} + \frac{x+10}{9} = 5$

$\frac{9(x-2) + 2(x+10)}{18} = 5$

$9x - 18 + 2x + 20 = 5 \times 18$

$11x + 2 = 90$

$11x = 90 - 2$

$11x = 88$

$x = 8$ Ans.

ii) $4a - 3(5a - 14) = 5(7 + a) - 9$

$4a - 15a + 42 = 35 + 5a - 9$

$-11a + 42 = 26 + 5a$

$42 - 26 = 11a + 5a$

$16 = 16a$

$\frac{16}{16} = \frac{16a}{16}$

$a = 1$ Ans.

6) $\frac{4(x+2)}{3} - \frac{6(x-7)}{7} = 12$

$\frac{4x+8}{3} - \frac{6x-42}{7} = 12$

3) $7(2-5x) + 27 = 18x - 3(8-4x)$

$14 - 35x + 27 = 18x - 24 + 12x$

$-35x + 41 = 30x - 24$

$41 + 24 = 30x + 35x$

$65 = 65x$

$\frac{65}{65} = \frac{65x}{65}$

$x = 1$ Ans.

$\frac{7(4x+8)}{21} - \frac{3(6x-42)}{21} = 12$

$28x + 56 - 18x + 126 = 12 \times 21$

$10x + 182 = 256$

$10x = 256 - 182$

$10x = 70$

$10x = 70$

$x = 7$

$x = 7$ Ans.

1) $\frac{5x}{4} + \frac{1}{2} = 0$

$\frac{5x+2}{4} = 0$

$5x + 2 = 0 \times 4$

$5x = -2 + 0$

$5x = -2$

$x = \frac{-2}{5}$ Ans.

$3 \mid 3, 7$
 $2 \mid 1, 7$
 $1 \mid 7$
 $3 \times 7 = 21$

$3 \mid 3, 2$
 $2 \mid 1, 2$
 $1 \mid 2$
 $2 \times 2 = 4$

$$7) \frac{x}{2} + \frac{x}{3} - \frac{x}{4} + \frac{x}{5} = 7\frac{5}{6}$$

$$\frac{30x + 20x - 15x + 12x}{60} = 47$$

$$30x + 20x - 15x + 12x = 47 \times 60$$

$$62x - 15x = 2820$$

$$47x = 2820$$

$$x = \frac{2820}{60}$$

$$47x$$

$$x = 60 \text{ Ans.}$$

$$8) \frac{y+1}{3} + \frac{y+1}{2} = 2 - \frac{y+3}{2}$$

$$\frac{2(y+1) + 3(y+1)}{6} = \frac{2 - y + 3}{2}$$

$$2(y+1) + 3(y+1) = 6(-y+3)$$

$$2y+2+3y+3 = -6y+18$$

$$5y+5 = -6y+18$$

$$5y+6y = 18-5$$

$$11y = 13$$

$$y = \frac{13}{11} \text{ Ans.}$$

$$9) \frac{1}{5}(x-8) + \frac{4+x}{7} = 7 - \frac{23-x}{5}$$

$$\frac{7(x-8) + 5(4+x)}{35} = \frac{7-23-x}{5}$$

$$\frac{7x-56+20+5x}{35} = \frac{35-23-x}{5}$$

$$\frac{7x-56+20+5x}{35} = \frac{12-x}{5}$$

$$5(7x-56+20+5x) = 35(12-x)$$

$$25x-180 = 420-35x$$

$$60x-180 = 420+35x$$

$$60x-35x = 420+180$$

$$25x = 600$$

$$x = \frac{600}{25}$$

$$x = 24 \text{ Ans.}$$

$$10) \frac{1}{2y} - \frac{1}{6} = \frac{1}{4y} - \frac{1}{y}; y \neq 0$$

$$\frac{1}{2y} - \frac{1}{4y} + \frac{1}{y} = -\frac{1}{6} + \frac{1}{y}$$

$$\frac{2 - 1 + 4}{4y} = \frac{-6 + 1}{6}$$

$$\frac{5}{4y} = \frac{-5}{6}$$

$$4y(-5) = 5(6)$$

$$\cancel{4y} = \cancel{30}$$

$$4y = \frac{-6}{-5}$$

$$4y = -6$$

$$y = \frac{-6}{4}$$

$$y = \frac{-3}{2}$$

Check:-

$$\frac{1}{2y} - \frac{1}{6} = \frac{1}{4y} - \frac{1}{y}$$

$$\frac{1}{2(-\frac{3}{2})} - \frac{1}{6} = \frac{1}{2(-\frac{3}{2})} - \frac{1}{(-\frac{3}{2})}$$

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

$$\frac{-2-1}{6} = \frac{-3}{6} = \frac{-1-6+4}{6} = \frac{-3}{6}$$

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

$$Q11) 4 - 0.3(1-x) = 7$$

$$-0.3(1-x) = 7-4$$

$$-0.3(1-x) = 3$$

$$(1-x) = \frac{3 \times 10}{-0.3}$$

$$1-x = -10$$

$$-x = -10-1$$

$$x = 11$$

$$x = 11 \text{ Ans}$$

Check:-

$$4 - 0.3(1-11) = 7$$

$$4 - 0.3(-10) = 7$$

$$4 - 0.3(-10) = 7$$

$$4 + 3 = 7$$

$$7 = 7$$

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

$$Q12) 0.5x = 6.3 - 0.2x$$

$$0.5x + 0.2x = 6.3$$

$$0.7x = 6.3$$

$$\cancel{x} = \frac{6.3}{0.7}$$

$$(0.7)x = \frac{6.3 \times 10}{0.7 \times 10}$$

$$10$$

$$x = \frac{6.3 \times 10}{0.7 \times 10}$$

$$10 \text{ replace}$$

$$x = \frac{6.3}{0.7}$$

$$x = 9$$

$$x = 9 \text{ Ans}$$

Check:-

$$0.5x = 6.3 - 0.2x$$

$$0.5(9) = 6.3 - 0.2(9)$$

$$4.5 = 6.3 - 1.8$$

$$4.5 = 4.5$$

$$\text{L.H.S} = \text{R.H.S} \text{ Are}$$

$$\text{Q13) } 1.3x - 0.2 = 0.3x - 1.5$$

$$1.3x - 0.3x = 0.2 - 1.5$$

$$x = -1.3$$

Check

$$1.3x - 0.2 = 0.3x - 1.5$$

$$1.3(-1.3) - 0.2 = 0.3(-1.3) - 1.5$$

$$-1.69 - 0.2 = -0.39 - 1.5$$

$$-1.89 = -1.89$$

$$\text{L.H.S} = \text{R.H.S}$$