

Unit 9:

1) Solve the following equations.

$\frac{1}{8} x = 4$

∴  $\frac{1}{8} x = 4$   
 $x = 4 \times 8$   
 $x = 32$

$2x - 6 = 0$   
Sol  $= 2x - 6 = 0$   
 $= 2x = 0 + 6$   
 $= 2x = 6$   
 $= x = \frac{6}{2}$   
 $x = 3$

ol  $x - 7 = -15$   
 $x - 7 = -15$   
 $x = -15 + 7$   
 $x = -8$

$11x - 2 = 20$   
Sol  $11x - 2 = 20$   
 $11x = 20 + 2$   
 $11x = 22$   
 $x = \frac{22}{11}$   
 $x = 2$

Sol  $x + 1 = 5$   
 $x + 1 = 5$   
 $x = 5 - 1$   
 $x = 4$

$$\begin{aligned} 17x &= 255 \\ \text{Sol } 17x &= 255 \\ x &= \frac{255}{17} \\ x &= 15 \end{aligned}$$

$$\begin{aligned} 7x + 3 &= 19 \\ \text{Sol } \frac{7x + 3}{2} &= 19 \\ 7x + 3 &= 19 \times 2 \\ 7x + 3 &= 38 \\ 7x &= 38 - 3 \\ 7x &= 35 \\ x &= \frac{35}{7} \\ x &= 5 \end{aligned}$$

$$5x - 3 = 12$$

Sol  $5x - 3 = 12$

$$5x = 12 + 3$$

$$5x = 15$$

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

$$x = 3$$

$$11 - x = 6$$

Sol  $11 - x = 6$

$$-x = 6 - 11$$

$$-x = -5$$

$$+x = +5$$

$$\frac{2x}{5} = 8$$

Sol  $2x = 8$

$$5$$

$$2x = 8 \times 5$$

$$2x = 40$$



$$x = \frac{40}{20}$$

$$x = 2$$

$$x = 20$$

$$\frac{x}{3} - 7 = 2$$

$$3$$

Sol  $\frac{x}{3} - 7 = 2$

$$3$$

$$\frac{x}{3} = 2 + 7$$

$$3$$

$$\frac{x}{3} = 9$$

$$3$$

$$x = 3 \times 9$$

$$x = 27$$

$$\frac{5x}{2} = 10$$

$$2$$

Sol  $\frac{5x}{2} = 10$

$$2$$

$$5x = 10 \times 2$$

$$5x = 20$$

$$x = \frac{20}{5}$$

$$x = 4$$

$$9x + 11 = 83$$

Sol

$$9x = 83 - 11$$

$$9x = 72$$

$$x = \frac{72}{9}$$

$$x = 8$$

$$x - 5 = 7$$

$$4$$

Sol:

$$x - 5 = 7$$

$$4$$

$$x - 5 = 7 \times 4$$

$$x - 5 = 28$$

$$x = 28 + 5$$

$$x = 33$$



$$\frac{x}{4} - 2 = 5$$

Sol  $\frac{x}{4} - 2 = 5$

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

$$\frac{x}{4} = 7$$

$$x = 7 \times 4$$

$$x = 28$$

Ans



equations.

$$5x - 3 = 3x - 5$$

Sol  $5x = 3x - 5 + 3$

$$5x = 3x - 2$$

$$5x - 3x = -2$$

$$2x = -2$$

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

$$x$$

$$x = -1 \text{ Ans.}$$

$$3x + 8 = 5x + 2$$

$$3x = 5x + 2 - 8$$

$$3x = 5x - 6$$

$$3x - 5x = -6$$

$$-2x = -6$$

$$x = \frac{-6}{-2}$$

$$x$$

$$x = 3$$



$$1) x - 3 = 5(2x + 1)$$

$$12x - 3 = 10x + 5$$

$$12x = 10x + 5 + 3$$

$$12x = 10x + 8$$

$$12x - 10x = +8$$

$$2x = +8$$

$$x = \frac{8}{2}$$

$$x$$

$$x = 4$$

$$10(2 - x) = 4(x - 9)$$

$$\text{Sol: } 10(2 - x) = 4(x - 9)$$

$$+20 - 10x = 4x - 36$$

$$-10x = 4x - 36 - 20$$

$$-10x = 4x - 56$$

$$-10x - 4x = -56$$

$$-14x = -56$$

$$x = \frac{-56}{-14}$$

$$-14$$

$$x = +4$$

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

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

By cross multiplication

$$\frac{x-3}{x+1} \times \frac{3}{5}$$

$$(x-3) \times 5 = (x+1) \times 3$$

$$5x - 15 = 3x + 3$$

$$5x = 3x + 3 + 15$$

$$5x = 3x + 18$$

$$5x - 3x = +18$$

$$2x = +18$$

$$x = \frac{18}{2} = 9$$

$$x = 9$$

Q.166  
Find the solution of following equations.

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

Sol.

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

By cross multiplication

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

$$(x-1) \times 3 = (x-2) \times 4$$

$$3x - 3 = 4x - 8$$

$$3x = 4x - 8 + 3$$

$$3x = 4x - 5$$

$$3x - 4x = -5$$

$$-1x = -5$$

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

$$x = 5$$

$$x = 5$$





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

Sol

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

By cross multiplication

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

$$(x-2)7 = (3x+4)1$$

$$7x - 14 = 3x + 4$$

$$7x = 3x + 4 + 14$$

$$7x = 3x + 18$$

$$7x - 3x = 18$$

$$4x = 18$$

$$x = \frac{18}{4}$$

$$4 \cancel{2}$$

$$x = \frac{9}{2}$$

$$\frac{3x-8}{5x-2} = 1$$

$$5x-2$$

Sol

$$\frac{3x-8}{5x-2} = 1$$

$$5x-2$$

$$\frac{3x-8}{5x-2} = 1$$

$$5x-2$$

By cross multi

$$\frac{3x-8}{5x-2} = \frac{1}{1}$$

$$(3x-8)1 = (5x-2)1$$

$$3x-8 = 5x-2$$

$$3x = 5x-2+8$$

$$3x = 5x+6$$

$$3x-5x = 6$$

$$-2x = 6$$

$$x = \frac{6}{-2}$$

$$-x$$

$$x = -3$$

$$\frac{x+2}{2x-5} = \frac{2}{5}$$

$$\frac{x+2}{2x-5} = \frac{2}{5}$$

By cross multiplication

$$\frac{x+2}{2x-5} \times \frac{2}{5}$$

$$(x+2)5 = (2x-5)2$$

$$5x+10 = 4x-10$$

$$5x = 4x - 10 - 10$$

$$5x = 4x - 20$$

$$5x - 4x = -20$$

$$1x = -20$$

$$x = \frac{-20}{1}$$

x



$$\frac{x+3}{2} = \frac{x+6}{3}$$

Sol  $\frac{x+3}{2} = \frac{x+6}{3}$

By cross multiplication

$$\frac{x+3}{2} \times \frac{x+6}{3}$$

$$(x+3)3 = (x+6)2$$

$$3x+9 = 2x+12$$

$$3x = 2x+12-9$$

$$3x = 2x+3$$

$$3x-2x = +3$$

$$1x = 3$$

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

$$x = 3$$



$$\frac{7x - 6}{x - 18} = 1$$

$$x - 18$$

$$\frac{7x - 6}{x - 18} = 1$$

$$x - 18$$

$$\frac{7x - 6}{x - 18} = \frac{1}{1}$$

By cross multiplication

$$\frac{7x - 6}{x - 18} \times \frac{1}{1}$$

$$(7x - 6) \cdot 1 = (x - 18) \cdot 1$$

$$7x - 6 = 1x - 18$$

$$7x = 1x - 18 + 6$$

$$7x = 1x - 12$$

$$7x - 1x = -12$$

$$6x = -12$$

$$x = \frac{-12}{6}$$

$$x = -2$$

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

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

By cross multiplication

$$\frac{4x+3}{3} \times \frac{x+7}{2}$$

$$(4x+3)2 = (x+7)3$$

$$8x+6 = 3x+21$$

$$8x = 3x + 21 - 6$$

$$8x = 3x + 15$$

$$8x - 3x = +15$$

$$5x = +15$$

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

8

$$x = 3$$