

EXERCISE
1. Solve the equations :

(1) $x - 2 = 7$

Sol $x - 2 = 7$

$$\therefore x - 2 + 2 = 7 + 2$$

$$\therefore x = 9$$

$$\therefore \text{The solution of the equation is 9}$$


(2) $y + 3 = 10$

Sol $y + 3 = 10$

$$\therefore y = 10 - 3$$

$$\therefore y = 7$$

$$\therefore \text{The solution of the equation is 7}$$


(3) $6 = z + 2$

Sol $6 = z + 2$

$$\therefore 6 - 2 = z$$

$$\therefore 4 = z$$

$$\therefore \text{The solution of the equation is 4}$$


(4) $\frac{3}{7} + x = \frac{17}{7}$

Sol $\frac{3}{7} + x = \frac{17}{7}$

$$\therefore x = \frac{17}{7} - \frac{3}{7}$$

$$\therefore x = \frac{17 - 3}{7}$$

$$\therefore x = \frac{14}{7}$$

$$\therefore x = 2$$

$$\therefore \text{The solution of the equation is 2}$$


(5) $6x = 12$

Sol $6x = 12$

$$\therefore x = \frac{\cancel{12}^2}{\cancel{6}_1}$$

$$\therefore x = 2$$

$\therefore$ The solution of the equation is 2



(6) $\frac{t}{5} = 10$

Sol $\frac{t}{5} = 10$

$$\therefore t = 10 \times 5$$

$$\therefore t = 50$$

$\therefore$ The solution of the equation is 50



(7) $\frac{2x}{3} = 18$

Sol $\frac{2x}{3} = 18$

$$\therefore 2x = 18 \times 3$$

$$\therefore 2x = 54$$

$$\therefore x = \frac{\cancel{54}^{27}}{\cancel{2}_1}$$

$$\therefore x = 27$$

$\therefore$ The solution of the equation is 27



(8) $1.6 = \frac{y}{1.5}$

Sol $1.6 = \frac{y}{1.5}$

$$\therefore 1.6 \times 1.5 = y$$

$$\therefore 2.4 = y$$

$\therefore$ The solution of the equation is 2.4



variables on one side,
numbers on the other
side.

(9) $7x - 9 = 16$

Sol $7x - 9 = 16$

$\therefore 7x = 16 + 9$

$\therefore 7x = 25$

$\therefore x = \frac{25}{7} = 3\frac{4}{7}$

$\therefore$ The solution of the equation is $\frac{25}{7}$ 

(10) $14y - 8 = 13$

Sol $14y - 8 = 13$

$\therefore 14y = 13 + 8$

$\therefore 14y = 21$

$\therefore y = \frac{21}{14}$

$\therefore y = \frac{3}{2}$ or $1\frac{1}{2}$ or 1.5

$\therefore$ The solution of the equation is $\frac{3}{2}$ 

(11) $17 + 6p = 9$

Sol $17 + 6p = 9$

$\therefore 6p = 9 - 17$

$\therefore 6p = -8$

$\therefore p = \frac{-8}{6}$

$\therefore p = \frac{-4}{3} = -1\frac{1}{3}$

$\therefore$ The solution of the equation is $\frac{-4}{3}$ 

$$(12) \quad \frac{x}{3} + 1 = \frac{7}{15}$$

Sol

$$\frac{x}{3} + 1 = \frac{7}{15}$$

$$\therefore \frac{x}{3} = \frac{7}{15} - 1$$

$$\therefore \frac{x}{3} = \frac{7}{15} - \frac{1 \times 15}{15}$$

$$\therefore \frac{x}{3} = \frac{7}{15} - \frac{15}{15}$$

$$\therefore \frac{x}{3} = \frac{7-15}{15}$$

$$\therefore \frac{x}{3} = \frac{-8}{15}$$

$$\therefore x = \frac{-8}{\cancel{15}_5} \times \cancel{3}^1$$

$$\therefore x = \frac{-8}{5}$$

$\therefore$ The solution of the equation is $\frac{-8}{5}$



EXERCISE

$\rightarrow$ Variables on both sides

1. Solve the equations :

$$(1) \quad 3x = 2x + 18$$

Sol

$$3x = 2x + 18$$

$$\therefore 3x - 2x = 18$$

$$\therefore 1x = 18$$

$$\therefore x = 18$$

$\therefore$ The solution of the equation is 18



$$(2) \quad 5t - 3 = 3t - 5$$

Sol

$$5t - 3 = 3t - 5$$

$$\therefore 5t = 3t - 5 + 3$$

$$\therefore 5t = 3t - 2$$

$$\therefore 2t = -2$$

$$\therefore t = \frac{-2}{2}$$

$$\therefore t = -1$$

$\therefore$ The solution of the equation is -1



(3) $5x + 9 = 5 + 3x$

Sol $5x + 9 = 5 + 3x$

$$\therefore 5x = 3x + 5 - 9$$

$$\therefore 5x = 3x - 4$$

$$\therefore 2x = -4$$

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

$$\therefore x = -2$$

$$\therefore \text{The solution of the equation is } -2$$



(4) $4z + 3 = 6 + 2z$

Sol $4z + 3 = 6 + 2z$

$$\therefore 4z = 2z + 6 - 3$$

$$\therefore 4z = 2z + 3$$

$$\therefore 2z = 3$$

$$\therefore z = \frac{3}{2}$$

$$\therefore \text{The solution of the equation is } \frac{3}{2}$$



(5) $2x - 1 = 14 - x$

Sol $2x - 1 = 14 - x$

$$\therefore 2x = -x + 14 + 1$$

$$\therefore 2x = -x + 15$$

$$\therefore 3x = 15$$

$$\therefore x = \frac{15}{3}$$

$$\therefore x = 5$$

$$\therefore \text{The solution of the equation is } 5$$



(6) $8x + 4 = 3(x - 1) + 7$

Sol $8x + 4 = 3(x - 1) + 7$

$$\therefore 8x + 4 = 3 \times x - 3 \times 1 + 7$$

$$\therefore 8x + 4 = 3x - 3 + 7$$

$$\therefore 8x + 4 = 3x + 4$$

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

$$\therefore 8x - 3x = 0$$

$$\therefore 5x = 0$$

$$\therefore x = \frac{0}{5}$$

$$\therefore x = 0$$

$\therefore$ The solution of the equation is 0



(7) $x = \frac{4}{5}(x + 10)$

Sol $x = \frac{4}{5}(x + 10)$

$$\therefore x = \frac{4}{5} \times x + \frac{4}{5} \times \overset{2}{\cancel{10}}$$

$$\therefore x = \frac{4x}{5} + 8$$

$$\therefore \frac{x}{1} - \frac{4x}{5} = 8$$

$$\therefore \frac{x \times 5}{1 \times \cancel{5}} - \frac{4x}{5} = 8$$

$$\therefore \frac{5x}{5} - \frac{4x}{5} = 8$$

$$\therefore \frac{1x}{5} = 8$$

$$\therefore x = 8 \times 5$$

$$\therefore x = 40$$

$\therefore$ The solution of the equation is 40



$$13) 3x = 2x + 18$$

$$3x - 2x = 18$$

$$\boxed{x = 18}$$

$$14) 5t - 3 = 3t - 5$$

$$5t - 3t = -5 + 3$$

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

$$\boxed{t = -1}$$

$$15) 5x + 9 = 5 + 3x$$

$$5x - 3x = 5 - 9$$

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

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

$$17) 2x - 7 = 14 - x$$

$$2x + x = 14 + 7$$

$$\frac{3x}{3} = \frac{21}{3}$$

$$\boxed{x = 7}$$

$$16) 4z + 3 = 6 + 2z$$

$$4z - 2z = 6 - 3$$

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

$$\boxed{z = \frac{3}{2}}$$

$$16) 8x + 4 = 3(x - 7) + 7$$

$$8x + 4 = 3x - 3 + 7$$

$$8x - 3x = -3 - 4 + 7$$

$$5x = 0$$

$$\frac{x}{5} = \frac{0}{5}$$

$$\boxed{x = 0}$$

$$17) x = \frac{4}{5}(x + 10)$$

$$x = \frac{4}{5}x + 8$$

$$x - \frac{4}{5}x = 8 \quad x - \frac{4}{5}x = 8$$

$$x - 4x = 8 \times 5$$

$$\frac{x - 4x}{-4} = \frac{40}{-4}$$

$$-4x = -40$$

$$\frac{-4x}{-4} = \frac{-40}{-4}$$

$$x = 10$$

$$x = -10$$

$$\cancel{x} \left(\frac{-4x}{5} \right) = 8$$

$$-4x = 40 \quad \checkmark$$

$$\frac{\cancel{x}^5 - \frac{4}{5}x \times 1}{1 \times 5 \quad 5 \times 1} = 8$$

$$\frac{5x - 4x}{5} = \frac{1x}{5} = 8$$

$$= x = 8 \times 5$$

$$\boxed{x = 40}$$

$$(8) \frac{2x}{3} + 1 = \frac{7x}{15} + 3$$

$$\text{Sol} \quad \frac{2x}{3} + 1 = \frac{7x}{15} + 3$$

$$\therefore \frac{2x}{3} = \frac{7x}{15} + 3 - 1$$

$$\therefore \frac{2x}{3} = \frac{7x}{15} + 2$$

$$\therefore \frac{2x}{3} - \frac{7x}{15} = 2$$

$$\therefore \frac{2x \times 5}{3 \times 5} - \frac{7x}{15} = 2$$

$$(9) 2y + \frac{5}{3} = \frac{26}{3} - y$$

$$\text{Sol} \quad 2y + \frac{5}{3} = \frac{26}{3} - y$$

$$\therefore 2y = \frac{26}{3} - \frac{5}{3} - y$$

$$\therefore 2y = \frac{21}{3} - y$$

$$\therefore 2y + y = \frac{21}{3}$$

$$\therefore 3y = \frac{21}{3}$$

$$\therefore \frac{10x}{15} - \frac{7x}{15} = 2$$

$$\therefore \frac{\cancel{3}x}{\cancel{15}_5} = 2$$

$$\therefore \frac{1x}{5} = 2$$

$$\therefore x = 2 \times 5$$

$$\therefore x = 10$$

$\therefore$ The solution of the equation is 10



$$\therefore 3y = 7$$

$$\therefore y = \frac{7}{3}$$

$\therefore$ The solution of the equation is $\frac{7}{3}$



$$(10) 3m = 5m - \frac{8}{5} \rightarrow \text{Hw}$$