Linear Equations in One Variable: Exercise 2.1

Solve the following equations.

Q.1 x – 2 = 7

***Sol.* Given equation:** x – 2 = 7

By adding 2 on both the sides,

$$x - 2 + 2 = 7 + 2$$
$$x = 7 + 2$$
$$x = 9$$

Q.2 y + 3 = 10

***Sol.* Given equation:** y + 3 = 10

By subtracting 3 on both the sides,

$$y + 3 - 3 = 10 - 3$$
$$y = 10 - 3$$
$$y = 7$$

Q.3 6 = z + 2

***Sol.* Given equation:** 6 = z + 2

Transposing the RHS to LHS,

$$z + 2 = 6$$

By subtracting 2 on both the sides,

$$z + 2 - 2 = 6 - 2$$
$$z = 4$$

Q.4 $\frac{3}{7} + x = \frac{17}{7}$

***Sol.* Given equation:** $\frac{3}{7} + x = \frac{17}{7}$

Now, subtracting $\frac{3}{7}$ on both the sides,

$$\frac{3}{7} + x - \frac{3}{7} = \frac{17}{7} - \frac{3}{7}$$
$$x = \frac{17 - 3}{7}$$
$$x = \frac{14}{7}$$
$$x = 2$$

Q.5 6x=12

***Sol.* Given equation:** 6x = 12

Now, dividing by 6 on both the sides of equation,

$$\frac{6x}{6} = \frac{12}{6}$$
$$x = 2$$

Q.6 $\frac{t}{5} = 10$

Sol. **Given equation:** $\frac{t}{5} = 10$

Now, multiplying by 5 on both the sides of equation,

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

$$t = 50$$

Q.7 $\frac{2x}{3} = 18$

Sol. **Given equation:** $\frac{2x}{3} = 18$

On multiplying by 3 on both the sides of equation,

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

$$2x = 54$$

On dividing by 2 on both the sides of equation $\frac{2x}{2} = \frac{54}{2}$

$$x = 27$$

Q.8 $1.6 = \frac{y}{1.5}$

Sol. **Given equation:** $1.6 = \frac{y}{1.5}$

On multiplying 1.5 on both the sides of equation

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

$$1.6 \times 1.5 = y$$

$$2.40 = y$$

$$y = 2.4$$

Q.9 $7x - 9 = 16$

Sol. **Given equation:** $7x - 9 = 16$

On adding 9 on both the sides of the equation,

$$7x - 9 + 9 = 16 + 9$$

$$7x = 25$$

Now, on dividing by 7 on both the sides of the equation,

$$\frac{7x}{7} = \frac{25}{7}$$

$$x = \frac{25}{7}$$

Q.10 $14y - 8 = 13$

Sol. **Given equation:** $14y - 8 = 13$

On adding 8 on both the sides of the equation,

$$14y - 8 + 8 = 13 + 8$$

$$14y = 21$$

Now, on dividing by 14 on both the sides of the equation,

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

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

Q.11 $17 + 6p = 9$

***Sol.* Given equation:** $17 + 6p = 9$

On subtracting 17 on both the sides of the equation,

$$17 + 6p - 17 = 9 - 17$$

$$6p = -8$$

Now, on dividing by 6 on both the sides of the equation,

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

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

Q.12 $\frac{x}{3} + 1 = \frac{7}{15}$

***Sol.* Given equation:** $\frac{x}{3} + 1 = \frac{7}{15}$

Transposing 1 from LHS to RHS,

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

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

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

On multiplying by 3 on both the sides of the equation,

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

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