



### Exercise 10A

Question 25:

$$\begin{aligned}
 3\sqrt{7}x^2 + 4x - \sqrt{7} &= 0 \Rightarrow 3\sqrt{7}x^2 + 7x - 3x - \sqrt{7} = 0 \\
 &\Rightarrow \sqrt{7}x(3x + \sqrt{7}) - 1(3x + \sqrt{7}) = 0 \\
 &\Rightarrow (3x + \sqrt{7})(\sqrt{7}x - 1) = 0 \\
 &\Rightarrow (3x + \sqrt{7}) = 0 \text{ or } (\sqrt{7}x - 1) = 0 \\
 3x &= -\sqrt{7} \text{ or } x = \frac{1}{\sqrt{7}} \\
 x &= \frac{-\sqrt{7}}{3} \text{ or } x = \frac{1 \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} = \frac{\sqrt{7}}{7}
 \end{aligned}$$

Question 26:

$$\begin{aligned}
 \sqrt{7}y^2 - 6y - 13\sqrt{7} &\Rightarrow \sqrt{7}y^2 - 13y + 7y - 13\sqrt{7} = 0 \\
 &\Rightarrow y(\sqrt{7}y - 13) + \sqrt{7}(\sqrt{7}y - 13) = 0 \\
 &\Rightarrow (y + \sqrt{7})(\sqrt{7}y - 13) = 0 \\
 &\Rightarrow (y + \sqrt{7}) = 0 \text{ or } (\sqrt{7}y - 13) = 0 \\
 y &= -\sqrt{7} \text{ or } y = \frac{13}{\sqrt{7}} = \frac{13 \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} = \\
 y &= -\sqrt{7} \text{ or } y = \frac{13\sqrt{7}}{7}
 \end{aligned}$$

Question 27:

$$\begin{aligned}
 4\sqrt{6}x^2 - 13x - 2\sqrt{6} &= 0 \\
 &\Rightarrow 4\sqrt{6}x^2 - 16x + 3x - 2\sqrt{6} = 0 \\
 &\Rightarrow 4\sqrt{2}x(\sqrt{3}x - 2\sqrt{2}) + \sqrt{3}(\sqrt{3}x - 2\sqrt{2}) = 0 \\
 &\Rightarrow (\sqrt{3}x - 2\sqrt{2})(4\sqrt{2}x + \sqrt{3}) = 0 \\
 &\Rightarrow x = \left(\frac{2\sqrt{2}}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}}\right) = \frac{2\sqrt{6}}{3} \text{ or } x = \left(\frac{-\sqrt{3}}{4\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}}\right) = \frac{-\sqrt{6}}{8}
 \end{aligned}$$

Question 28:

$$5x - \frac{35}{x} = 18$$

$$\Rightarrow 5x^2 - 35 = 18x$$

$$\Rightarrow 5x^2 - 18x - 35 = 0$$

$$\Rightarrow 5x^2 - 25x + 7x - 35 = 0$$

$$\Rightarrow 5x(x - 5) + 7(x - 5) = 0$$

$$\Rightarrow (x - 5)(5x + 7) = 0$$

$$\Rightarrow (x - 5) = 0 \quad \text{or} \quad (5x + 7) = 0$$

$$\Rightarrow x = 5 \quad \text{or} \quad x = \frac{-7}{5}$$

Hence, 5 and  $x = -7/5$  are the roots of given equation

Question 29:

$$10x - \frac{1}{x} = 3 \Rightarrow 10x^2 - 1 = 3x$$

$$\Rightarrow 10x^2 - 3x - 1 = 0$$

$$\Rightarrow 10x^2 - 5x + 2x - 1 = 0$$

$$\Rightarrow 5x(2x - 1) + 1(2x - 1) = 0$$

$$\Rightarrow (5x + 1)(2x - 1) = 0$$

$$\Rightarrow 5x + 1 = 0 \quad \text{or} \quad 2x - 1 = 0$$

$$x = \frac{-1}{5} \quad \text{or} \quad x = \frac{1}{2}$$

Hence,  $x = -1/5$  and  $x = 1/2$  are the roots of given equation.

Question 30:

$$\frac{2}{x^2} - \frac{5}{x} + 2 = 0$$

Multiplying by  $x^2$

$$2 - 5x + 2x^2 = 0 \text{ or } 2x^2 - 5x + 2 = 0$$

$$\Rightarrow 2x^2 - 4x - x + 2 = 0$$

$$\text{or } 2x(x - 2) - 1(x - 2) = 0$$

$$(x - 2)(2x - 1) = 0$$

$$\therefore (x - 2) = 0 \text{ or } 2x - 1 = 0$$

$$\Rightarrow x = 2, x = \frac{1}{2}$$

Hence, 2 and  $x=1/2$  are the roots of given equation.

Question 31:

$$abx^2 + (b^2 - ac)x - bc = 0$$

$$\Rightarrow abx^2 + b^2x - acx - bc = 0$$

$$\Rightarrow bx(ax + b) - c(ax + b) = 0$$

$$\Rightarrow (ax + b)(bx - c) = 0$$

$$(ax + b) = 0 \text{ or } (bx - c) = 0$$

$$x = \frac{-b}{a} \text{ or } x = \frac{c}{b}$$

Hence,  $x=-b/a$  and  $x=c/b$  are the roots of given equation.

Question 32:

$$a^2b^2x^2 + b^2x - a^2x - 1 = 0$$

$$\Rightarrow b^2x(a^2x + 1) - 1(a^2x + 1) = 0$$

$$\Rightarrow (a^2x + 1)(b^2x - 1) = 0$$

$$\Rightarrow (a^2x + 1) = 0 \text{ or } (b^2x - 1) = 0$$

$$x = \frac{-1}{a^2} \text{ or } x = \frac{1}{b^2}$$

\*\*\*\*\* END \*\*\*\*\*

