Question 16:

$$48x^2 - 13x - 1 = 0 \Rightarrow 48x^2 - 16x + 3x - 1 = 0$$
$$\Rightarrow 16x(3x - 1) + 1(3x - 1) = 0$$
$$\Rightarrow \quad 16x + 1 = 0 \quad \text{or} \quad (3x - 1) = 0$$
$$x = \frac{-1}{16} \quad \text{or} \quad x = \frac{1}{3}$$

Hence, x=-1/16, x=1/3 are the roots of $48x^2$-13x-1=0.

Question 17:

$$3x^2 + 11x + 10 = 0 \Rightarrow 3x^2 + 6x + 5x + 10 = 0$$
$$\Rightarrow 3x(x + 2) + 5(x + 2) = 0$$
$$\Rightarrow \quad (3x + 5)(x + 2) = 0$$
$$\Rightarrow \quad\quad\quad (3x + 5) = 0 \quad \text{or} \quad (x + 2) = 0$$
$$x = \frac{-5}{3} \quad \text{or} \quad x = -2$$

Hence, x=-5/3 and x=-2 are the roots of the equation $3x^2$+11x+10=0

Question 18:

$$4x^2 - 9x = 100 \Rightarrow 4x^2 - 9x - 100 = 0$$
$$\Rightarrow 4x^2 - 25x + 16x - 100 = 0$$
$$\Rightarrow x(4x - 25) + 4(4x - 25) = 0$$
$$\Rightarrow \quad (4x - 25)(x + 4) = 0$$
$$(4x - 25) = 0 \quad \text{or} \quad (x + 4) = 0$$
$$x = \frac{25}{4} \quad \text{or} \quad x = -4$$

Hence, x=25/4 and x=-4 are the roots of the equation $4x^2$-9x=100.

Question 19:

$$9x^2 - 22 + 8 = 0 \Rightarrow 9x^2 - 18x - 4x + 8 = 0$$
$$\Rightarrow 9x(x-2) - 4(x-2) = 0$$
$$\Rightarrow (9x-4)(x-2) = 0$$
$$\Rightarrow (9x-4) = 0 \text{ or } (x-2) = 0$$
$$x = \frac{4}{9} \text{ or } x = 2$$

Hence, x=4/9 and 2 are the roots of the equation 9x²-22+8=0

Question 20:

$$15x^2 - 28 = x \Rightarrow 15x^2 - x - 28 = 0$$
$$\Rightarrow 15x^2 - 21x + 20x - 28 = 0$$
$$\Rightarrow 3x(5x-7) + 4(5x-7) = 0$$
$$\Rightarrow (5x-7)(3x+4) = 0$$
$$\Rightarrow (5x-7) = 0 \text{ or } (3x+4) = 0$$
$$x = \frac{7}{5} \text{ or } x = \frac{-4}{3}$$

Hence, x=7/5 and x=-4/3 are the roots of the given equation 15x²-28=x.

Question 21:

$$4 - 11x = 3x^2 \Rightarrow 3x^2 + 11x - 4 = 0$$
$$\Rightarrow 3x^2 + 12x - x - 4 = 0$$
$$\Rightarrow 3x(x+4) - 1(x+4) = 0$$
$$\Rightarrow (3x-1)(x+4) = 0$$
$$\Rightarrow 3x - 1 = 0 \text{ or } x + 4 = 0$$
$$x = \frac{1}{3} \text{ or } x = -4$$

Hence, x=1/3 and -4 are the roots of given equation .

Question 22:

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

Hence, 1 and $\sqrt{2}$ are the roots of the given equation

Question 23:

$$\sqrt{3}x^2 + 11x + 6\sqrt{3} = 0$$

here, $6\sqrt{3} \times \sqrt{3} = 6 \times 3 = 18$ and $9 \times 2 = 18$ & $9 + 2 = 11$

$$\sqrt{3}x^2 + 11x + 6\sqrt{3} = 0 \Rightarrow \sqrt{3}x^2 + 9x + 2x + 6\sqrt{3} = 0$$

$$\Rightarrow \sqrt{3}\left(x + 3\sqrt{3}\right) + 2\left(x + 3\sqrt{3}\right) = 0$$

$$\Rightarrow \left(\sqrt{3}x + 2\right)\left(x + 3\sqrt{3}\right) = 0$$

$$\Rightarrow \sqrt{3}x + 2 = 0 \text{ or } x + 3\sqrt{3} = 0$$

$$x = \frac{-2}{\sqrt{3}} \text{ or } x = -3\sqrt{3}$$

$$x = \frac{-2 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} \text{ or } x = -3\sqrt{3}$$

Hence, $\dfrac{-2\sqrt{3}}{3}$ and $-3\sqrt{3}$ are the roots of the given equation

Question 24:

$$4\sqrt{3}x^2 + 5x - 2\sqrt{3} = 0 \Rightarrow 4\sqrt{3}x^2 + 8x - 3x - 2\sqrt{3} = 0$$

$$\Rightarrow 4x\left(\sqrt{3}x + 2\right) - \sqrt{3}\left(\sqrt{3}x + 2\right) = 0$$

$$\Rightarrow \left(\sqrt{3}x + 2\right)\left(4x - \sqrt{3}\right) = 0$$

$$\Rightarrow \left(\sqrt{3}x + 2\right) = 0 \text{ or } \left(4x - \sqrt{3}\right) = 0$$

$$x = -\frac{2}{\sqrt{3}} = \frac{-2 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} \text{ or } x = \frac{\sqrt{3}}{4}$$

$$x = \frac{-2\sqrt{3}}{3} \text{ or } x = \frac{\sqrt{3}}{4}$$

Hence, $\dfrac{-2\sqrt{3}}{3}$ and $\dfrac{\sqrt{3}}{4}$ are the roots of the given equation

*********** END *********