

$$1 \text{ (v)} \quad x^2 + 2\sqrt{2}x - 6 = 0$$

$$\begin{aligned} D &= b^2 - 4ac \\ &= (2\sqrt{2})^2 - 4 \times 1 \times -6 \\ &= 8 + 24 \\ &= 32 \end{aligned}$$

$$\begin{aligned} x &= \frac{-b \pm \sqrt{D}}{2a} \\ &= \frac{-2\sqrt{2} \pm \sqrt{32}}{2 \times 1} \\ &= \frac{-2\sqrt{2} \pm 4\sqrt{2}}{2} \end{aligned}$$

$$\begin{aligned} x &= \frac{-2\sqrt{2} + 4\sqrt{2}}{2} & x &= \frac{-2\sqrt{2} - 4\sqrt{2}}{2} \\ &= \frac{2\sqrt{2}}{2} & &= \frac{-6\sqrt{2}}{2} \\ &= \sqrt{2} & &= -3\sqrt{2} \end{aligned}$$

$$1 \text{ (vi)} \quad x^2 - 3\sqrt{5}x + 10 = 0$$

$$\begin{aligned} D &= b^2 - 4ac \\ &= (-3\sqrt{5})^2 - 4 \times 1 \times 10 \\ &= 45 - 40 \\ &= 5 \end{aligned}$$

$$\begin{aligned} x &= \frac{-b \pm \sqrt{D}}{2a} \\ &= \frac{3\sqrt{5} \pm \sqrt{5}}{2 \times 1} \\ &= \frac{3\sqrt{5} \pm \sqrt{5}}{2} \end{aligned}$$

$$\begin{aligned} x &= \frac{3\sqrt{5} + \sqrt{5}}{2} & x &= \frac{3\sqrt{5} - \sqrt{5}}{2} \\ &= \frac{4\sqrt{5}}{2} & &= \frac{2\sqrt{5}}{2} \\ &= 2\sqrt{5} & &= \sqrt{5} \end{aligned}$$

$$1 \text{ (vii)} \quad \frac{1}{2}x^2 - \sqrt{11}x + 1 = 0$$

$$\begin{aligned} \Rightarrow x^2 - 2\sqrt{11}x + 2 &= 0 \\ D &= b^2 - 4ac \\ &= (-2\sqrt{11})^2 - 4 \times 1 \times 2 \\ &= 4 \times 11 - 8 \\ &= 44 - 8 \\ &= 36 \end{aligned}$$

$$\begin{aligned} x &= \frac{-b \pm \sqrt{D}}{2a} \\ &= \frac{2\sqrt{11} \pm \sqrt{36}}{2 \times 1} \\ &= \frac{2\sqrt{11} \pm 6}{2} \\ &= \sqrt{11} \pm 3 \end{aligned}$$

$$2 \text{ (i)} \quad 2x^2 + \frac{5}{3}x - 2 = 0$$

$$\begin{aligned} (\times 3) \Rightarrow 6x^2 + 5x - 6 &= 0 \\ \Rightarrow 6x^2 + 9x - 4x - 6 &= 0 \\ \Rightarrow 3x(2x+3) - 2(2x+3) &= 0 \\ \Rightarrow (2x+3)(3x-2) &= 0 \\ \Rightarrow 2x+3=0, 3x-2=0 \\ \Rightarrow x = -\frac{3}{2}, x = \frac{2}{3} \end{aligned}$$

$$2 \text{ (ii)} \quad \frac{2}{5}x^2 - x - \frac{3}{5} = 0$$

$$\begin{aligned} (\times 5) \quad 2x^2 - 5x - 3 &= 0 \\ \Rightarrow 2x^2 - 6x + x - 3 &= 0 \\ \Rightarrow 2x(x-3) + 1(x-3) &= 0 \\ \Rightarrow (x-3)(2x+1) &= 0 \\ \Rightarrow x-3=0, 2x+1=0 \\ \Rightarrow x=3, x = -\frac{1}{2} \end{aligned}$$