



Quadratic Equations Ex 14.2 Q2(i)

$$x^2 - (3\sqrt{2} + 2i)x + 6\sqrt{2}i = 0$$

$$\Rightarrow x^2 - 3\sqrt{2}x - 2ix + \sqrt{2}i = 0$$

$$\Rightarrow x(x - 3\sqrt{2}) - 2i(x - 3\sqrt{2}) = 0$$

$$\Rightarrow (x - 2i)(x - 3\sqrt{2}) = 0$$

$$\Rightarrow x = 2i \quad \text{or} \quad 3\sqrt{2}$$

Quadratic Equations Ex 14.2 Q2(ii)

$$x^2 - (5 - i)x + (18 + i) = 0$$

$$\Rightarrow x^2 - 5x - ix + 18 + i = 0$$

$$\Rightarrow x^2 - (3 - 4i)x - (2 + 3i)x + (18 + i) = 0$$

$$\Rightarrow x(x - (3 - 4i)) - (2 + 3i)(x - (3 - 4i)) = 0$$

$$\Rightarrow (x - (2 + 3i))(x - (3 - 4i)) = 0$$

$$\Rightarrow x = 2 + 3i \quad \text{or} \quad 3 - 4i$$

Quadratic Equations Ex 14.2 Q2(iii)

$$(2 + i)x^2 - (5 - i)x + 2(1 - i) = 0$$

$$\Rightarrow (2 + i)x^2 - 2x - (3 - i)x + 2(1 - i) = 0$$

$$\Rightarrow x[2 + i)x - 2] - (1 - i)[(2 + i)x - 2] = 0$$

$$\Rightarrow [x - (1 - i)][(2 + i)x - 2] = 0$$

$$\text{either } [x - (1 - i)] = 0 \quad \text{or} \quad [(2 + i)x - 2] = 0$$

$$\Rightarrow x = 1 - i \quad \text{or} \quad x = \frac{2}{2 + i}$$

$$\Rightarrow x = 1 - i \quad \text{or} \quad x = \frac{2 \times 2 - i}{(2 + i)(2 - i)}$$

$$\text{or } x = \frac{4 - 2i}{4 + 1} = \frac{4}{5} - \frac{2}{5}i$$

Thus,

$$x = 1 - i, \quad \frac{4}{5} - \frac{2}{5}i$$

***** END *****

