

Q) Solve the equation $x^2 - 2x + \frac{3}{2} = 0$

solⁿ Given equation is $x^2 - 2x + \frac{3}{2} = 0$

$$\Rightarrow 2x^2 - 4x + 3 = 0$$

Comparing with $ax^2 + bx + c = 0$

$$a = 2, \quad b = -4, \quad c = 3$$

$$\text{Discriminant (D)} = b^2 - 4ac = 16 - 24$$

$$\underline{D = -8}$$

Solutions are : $\frac{-b \pm \sqrt{D}}{2a}$

$$= \frac{4 \pm \sqrt{-8}}{4}$$

$$= \frac{4 \pm i\sqrt{8}}{4}$$

$$= \frac{4 \pm i2\sqrt{2}}{4}$$

$$= 1 \pm i\frac{\sqrt{2}}{2}$$

$$= 1 \pm \frac{1}{\sqrt{2}}i$$