

## Ch - 4 Quadratic Equations

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### Class10th Maths- chapter 4

This is problem 1(ii) of exercise 4.3

1. Find the roots of equation if they exist, by the method of completing the squares.

$$2x^2 + x - 4 = 0 \quad (1)$$

**Solution:**

$$a = 2, b = 1, c = -4 \quad (2)$$

Therefore, the formula to find out roots =

$$\left[ \frac{-b \pm \sqrt{(b^2) - 4ac}}{2a} \right] \quad (3)$$

Hence, through this formula, the roots of the equation =

$$\left[ \frac{1 \pm \sqrt{(1^2) - 4 \times 2 \times -4}}{2 \times 2} \right] \quad (4)$$

$$(5)$$

$$= \left[ \frac{-1 \pm \sqrt{1 + 32}}{4} \right] \quad (6)$$

$$(7)$$

$$= \left[ \frac{-1 \pm \sqrt{33}}{4} \right] \quad (8)$$

$$(9)$$

$$= \left[ \frac{-1 + \sqrt{33}}{4} \right], \left[ \frac{-1 - \sqrt{33}}{4} \right] \quad (10)$$

Therefore, the roots are =

$$\left[ \frac{-1 + \sqrt{33}}{4} \right] \text{ and } \left[ \frac{-1 - \sqrt{33}}{4} \right]$$