

Quadratic equations

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10th Maths - Chapter 4

This is Problem-3(i) from Exercise 4.3

1. Find the roots of the quadratic equation

$$x - \frac{1}{x} = 3 \quad (1)$$

Solution: :

$$x - \frac{1}{x} = 3 \quad (2)$$

$$x^2 - 3x - 1 = 0 \quad (3)$$

$$(4)$$

The roots of the equation are given by:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad (5)$$

$$x = \frac{3 \pm \sqrt{1^2 - 4 \times 1 \times (-3)}}{2 \times 1} \quad (6)$$

$$x = \frac{3 \pm \sqrt{1 + 12}}{2} \quad (7)$$

$$x = \frac{3 \pm \sqrt{13}}{2} \quad (8)$$

$$x_1 = \frac{3 + \sqrt{13}}{2} \quad (9)$$

$$x_2 = \frac{3 - \sqrt{13}}{2} \quad (10)$$

$$(11)$$