

Quadratic Equations

G.sai avinash (gsavinash@sriprakashschools.com)

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Class 10th Maths - Chapter 4

This is Problem-2 from Exercise 4.3

1. Find the roots of the quadratic equations by applying the quadratic formula

(i) $2x^2 - 7x + 3 = 0$

Solution:

Given Data: $2x^2 - 7x + 3 = 0$

This can also be written as:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad (1)$$

$$x = \frac{-(-7) \pm \sqrt{7^2 - 4 \times 2 \times 3}}{2 \times 2} \quad (2)$$

$$x = \frac{7 \pm \sqrt{49 - 24}}{4} \quad (3)$$

$$x = \frac{7 \pm \sqrt{25}}{4} \quad (4)$$

$$x = \frac{7 \pm 5}{4} \quad (5)$$

$$(6)$$

1st condition

$$x = \frac{7+5}{4} \quad (7)$$

$$x = \frac{12}{4} \quad (8)$$

$$x = 3 \quad (9)$$

$$(10)$$

2nd condition

$$x = \frac{7-5}{4} \quad (11)$$

$$x = \frac{2}{4} \quad (12)$$

$$x = \frac{1}{2} \quad (13)$$

$$(14)$$

Hence there roots are $x=3$ and $x = \frac{1}{2}$