

Quadratic Equations

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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:

$$2x^2 - 7x + 3 = 0$$

Quadratic formula

$$\begin{aligned} x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ x &= \frac{-(-7) \pm \sqrt{(-7)^2 - 4 \times 2 \times 3}}{2 \times 2} \\ x &= \frac{7 \pm \sqrt{49 - 24}}{4} \\ x &= \frac{7 \pm \sqrt{25}}{4} \end{aligned}$$

$$\begin{aligned} \text{1st condition } x &= \frac{7+5}{4} \\ x &= \frac{12}{4} \\ x &= 3 \end{aligned}$$

$$\begin{aligned} \text{2nd condition } x &= \frac{7-5}{4} \\ x &= \frac{2}{4} \end{aligned}$$

$$x = \frac{1}{2}$$

hence the roots are: $x = \frac{1}{2}, x = 3$