Quadratic Equations

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Class 10^{th} 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: $\left(2x^2 - 7x + 3 = 0\right)$

Quadratic formula: $\left(x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}\right)$

$$\left(x = \frac{-(-7) \pm \sqrt{(-7)^2-4x2x3}}{2\times 2}\right) \tag{1}$$

$$\left(x = \frac{7 + \pm \sqrt{49-24}}{4}\right) \tag{2}$$

$$\left(x = \frac{7 + \pm \sqrt{25}}{4}\right) \tag{3}$$

$$\tag{4}$$

1st condition

$$x = \frac{7+5}{4} \tag{5}$$

$$x = \frac{12}{4} \tag{6}$$

$$x = 3 \tag{7}$$

$$\tag{8}$$

2nd condition

$$x = \frac{7-5}{4} \tag{9}$$

$$x = \frac{2}{4} \tag{10}$$

$$x = \frac{1}{2} \tag{11}$$

$$\tag{12}$$

$hencetherootsare : x = \frac{1}{2}$, x=3