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: $\left(x^2 - 45x + 324 = 0\right)$

This can also be written as:

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

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

$$x = \frac{7 \pm \sqrt{49 - 24}}{4} \tag{3}$$

$$x = \frac{7 \pm \sqrt{25}}{4} \tag{4}$$

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

$$1st condition \tag{6}$$

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

$$x = \frac{12}{4} \tag{8}$$

$$x = 3 \tag{9}$$

$$2nd Condition \tag{10}$$

$$x = \frac{7 - 5}{4} \tag{11}$$

$$x = \frac{2}{4} \tag{12}$$

$$x = \frac{1}{2} \tag{13}$$

$$Hence the re roots are x = 3 and x = \frac{1}{2} \tag{14}$$