

RD Sharma Solutions Class 10 Maths Chapter 8 Exercise 8.5: Chapter 8, Exercise 8.5 of RD Sharma Class 10 Maths focuses on solving quadratic equations using the method of factorization. Students are required to factorize the quadratic expression into two binomials and then find the values of x .

The exercise covers different types of quadratic equations, including those that require grouping and splitting the middle term. It also reinforces the understanding of roots of the equation and helps in applying factorization techniques to solve real-world problems.

RD Sharma Solutions Class 10 Maths Chapter 8 Exercise 8.5 Overview

Chapter 8, Exercise 8.5 of RD Sharma Class 10 Maths focuses on solving quadratic equations using various methods, including factorization, completing the square, and the quadratic formula. The exercise includes a variety of problems that help students understand the nature of quadratic equations and their solutions.

Mastering this exercise is crucial as it forms the foundation for many real-world applications, such as physics, economics, and engineering. Additionally, it helps in developing problem-solving skills and logical thinking, which are essential for higher studies in mathematics and other subjects. The exercise also prepares students for competitive exams and ensures a strong mathematical base.

RD Sharma Solutions Class 10 Maths Chapter 8 Exercise 8.5 Quadratic Equations

Below is the RD Sharma Solutions Class 10 Maths Chapter 8 Exercise 8.5 Quadratic Equations -

1. Write the discriminant of the following quadratic equations:

(i) $2x^2 - 5x + 3 = 0$

Solution:

Given equation,

$$2x^2 - 5x + 3 = 0$$

It is in the form of $ax^2 + bx + c = 0$

Where, $a = 2$, $b = -5$ and $c = 3$

So, the discriminant is given by $D = b^2 - 4ac$

$$D = (-5)^2 - 4 \times 2 \times 3$$

$$D = 25 - 24 = 1$$

Hence, the discriminant of the given quadratic equation is 1.

(ii) $x^2 + 2x + 4 = 0$

Solution:

Given equation,

$$x^2 + 2x + 4 = 0$$

It is in the form of $ax^2 + bx + c = 0$

Where, $a = 1$, $b = 2$ and $c = 4$

So, the discriminant is given by $D = b^2 - 4ac$

$$D = (2)^2 - 4 \times 1 \times 4$$

$$D = 4 - 16 = -12$$

Hence, the discriminant of the given quadratic equation is -12 .

(iii) $(x - 1)(2x - 1) = 0$

Solution:

Given equation,

$$(x - 1)(2x - 1) = 0$$

On expanding it, we get

$$2x^2 - 3x + 1 = 0$$

It is in the form of $ax^2 + bx + c = 0$

Where, $a = 2$, $b = -3$, $c = 1$

So, the discriminant is given by $D = b^2 - 4ac$

$$D = (-3)^2 - 4 \times 2 \times 1$$

$$D = 9 - 8 = 1$$

Hence, the discriminant of the given quadratic equation is 1.

(iv) $x^2 - 2x + k = 0$, $k \in \mathbb{R}$

Solution:

Given equation,

$$x^2 - 2x + k = 0$$

It is in the form of $ax^2 + bx + c = 0$

Where, $a = 1$, $b = -2$, and $c = k$

So, the discriminant is given by $D = b^2 - 4ac$

$$D = (-2)^2 - 4(1)(k)$$

$$= 4 - 4k$$

Hence, the discriminant of the given equation is $(4 - 4k)$.

$$\sqrt{3}x^2 + 2\sqrt{2}x - 2\sqrt{3} = 0$$

(v)

Solution:

(vi) $x^2 - x + 1 = 0$

Solution:

Given equation,

$$x^2 - x + 1 = 0 \text{ It is in the form of } ax^2 + bx + c = 0$$

Where, $a = 1$, $b = -1$ and $c = 1$

So, the discriminant is given by $D = b^2 - 4ac$

$$D = (-1)^2 - 4 \times 1 \times 1$$

$$D = 1 - 4 = -3$$

Thus, the discriminant of the given equation is -3 .

Benefits of Using RD Sharma Solutions Class 10 Maths Chapter 8 Exercise 8.5

Using RD Sharma Solutions for Class 10 Maths Chapter 8, Exercise 8.5 (Quadratic Equations) can offer several benefits:

1. Step-by-Step Explanations:

RD Sharma solutions provide detailed, step-by-step solutions for each problem in Exercise 8.5. This makes it easier for students to follow the logical progression required to solve quadratic equations, especially for concepts like factorization, completing the square, and using the quadratic formula.

2. Clear Conceptual Understanding:

The solutions help students understand the fundamental concepts of quadratic equations, such as:

What a quadratic equation is.

Methods to solve quadratic equations.

The discriminant and its significance. These foundational concepts are explained clearly, reinforcing the knowledge needed for problem-solving.

3. Variety of Problems:

Exercise 8.5 offers a variety of problems ranging from basic to more advanced levels. RD Sharma Solutions ensure that all types of problems are covered, helping students practice and master different techniques required to solve quadratic equations.

4. Better Time Management:

By using RD Sharma Solutions, students can learn time-saving tricks and techniques for solving quadratic equations more efficiently. This is especially useful when preparing for exams like the CBSE Class 10 Board Exams or entrance tests.

5. Quick Revision Tool:

For students who are revising the topic, RD Sharma Solutions act as a quick reference guide. They can quickly check their answers and identify any mistakes they might have made, making it an effective tool for last-minute revisions.

6. Boosts Confidence:

With the help of RD Sharma Solutions, students can solve quadratic equations with more confidence. Clear, accurate solutions help to build a deeper understanding, eliminating confusion and boosting overall performance.