RD Sharma Solutions Class 10 Maths Chapter 8 Exercise 8.2: Chapter 8 of RD Sharma Class 10 Maths focuses on Quadratic Equations, a critical topic in algebra. Exercise 8.2 explores methods to solve quadratic equations by factorization, which involves expressing the quadratic equation.

The exercise emphasizes identifying coefficients, factoring expressions, and equating factors to zero to find the roots. It also includes practical problems where quadratic equations arise, enhancing conceptual understanding. This section strengthens problem-solving skills and builds a foundation for advanced mathematical concepts, making it essential for board exam preparation.

RD Sharma Solutions Class 10 Maths Chapter 8 Exercise 8.2 Overview

Chapter 8, Quadratic Equations, is a pivotal part of Class 10 Mathematics as it lays the foundation for advanced algebraic concepts. Exercise 8.2 focuses on solving quadratic equations by factorization and the quadratic formula, key methods for tackling real-world problems in physics, engineering, and finance.

This exercise enhances analytical thinking and problem-solving skills, enabling students to understand the roots of equations and their applications. RD Sharma's solutions provide step-by-step explanations, fostering clarity and accuracy in concepts. Mastery of this topic ensures a solid grasp of quadratic equations, essential for competitive exams and higher education in mathematics.

RD Sharma Solutions Class 10 Maths Chapter 8 Exercise 8.2 Quadratic Equations

Below is the RD Sharma Solutions Class 10 Maths Chapter 8 Exercise 8.2 Quadratic Equations -

1. The product of two consecutive positive integers is 306. Form the quadratic equation to find the integers, if x denotes the smaller integer.

Solution:

Let the two integers be x and x+1, x taken as the smaller integer.

From the question, the product of these two integers is 306

So,

x(x + 1) = 306

⇒ $x^2 + x - 306 = 0$

Thus, the required quadratic equation is $x^2 + x - 306 = 0$

2. John and Jivani together have 45 marbles. Both of them lost 5 marbles each, and the product of the number of marbles they now have is 128. Form the quadratic equation to find how many marbles they to start with, if John had x marbles.

Solution:

Given,

John and Jilani together have a total of 45 marbles.

Let John have x marbles.

So, Jivani will have (45 – x) marbles.

Number of marbles John had after losing 5 marbles = x – 5

Number of marbles Jivani had after losing 5 marbles = (45 – x) – 5 = 40 – x

Now, according to the question, the product of the marbles that they are having now is 128

So,

(x – 5)(40 – x) = 128

⇒ $40x - x^2 - 200 = 128$

⇒ $x^2 - 45x + 128 + 200 = 0$

⇒ $x^2 - 45x + 328 = 0$

Thus the required quadratic equation is $x^2 - 45x + 328 = 0$.

3. A cottage industry produces a certain number of toys in a day. The cost of production of each toy (in rupees) was found to be 55 minus the number of articles produced in a day. On a particular day, the total cost of production was Rs. 750. If x denotes the number of toys produced that day, form the quadratic equation to find x.

Solution:

Given that x denotes the number of toys produced in a day.

So, the cost of production of each toy = (55 – x)

And, the total cost of production is the product of the number of toys produced in a day and the cost of production of each toy, i.e., x (55 – x)

From the question, it's given that

The total cost of production on that particular day is Rs.750

So,

$\Rightarrow$ x (55 – x) = 750

$\Rightarrow$ 55x – x^2 = 750

$\Rightarrow$ x^2 – 55x + 750 = 0

Thus, the required quadratic equation is x^2 – 55x + 750 = 0.

Benefits of Solving RD Sharma Solutions Class 10 Maths Chapter 8 Exercise 8.2

Solving RD Sharma Solutions for Class 10 Maths Chapter 8, Exercise 8.2 on Quadratic Equations offers several benefits for students preparing for board exams and competitive exams. Here's a detailed list of the benefits:

1. Conceptual Clarity

- Exercise 8.2 focuses on solving quadratic equations using methods like factorization, completing the square, and the quadratic formula.
- Practicing these problems enhances your understanding of the underlying concepts, helping you build a strong foundation.

2. Improved Problem-Solving Skills

- The exercise includes a variety of problems, from straightforward to challenging.
- Regular practice sharpens problem-solving abilities, enabling you to tackle quadratic equations efficiently in exams.

3. Better Time Management

- Solving RD Sharma problems regularly allows students to identify quicker approaches to solving quadratic equations, saving valuable time during exams.

4. Exposure to Varied Problem Types

- The problems in Exercise 8.2 cover a wide range of question formats, such as:
- Simple quadratic equations.
- Word problems requiring equation formulation.
- Equations with real and complex roots.

5. Practice for Board Exams

- RD Sharma's problems are closely aligned with the CBSE syllabus.
- Practicing these ensures you're well-prepared for the types of quadratic equation questions asked in board exams.

6. Foundation for Higher Mathematics

- Quadratic equations are a crucial topic in algebra and appear in advanced mathematics topics in Class 11 and 12.
- Mastery in Class 10 sets the stage for easier understanding of conic sections, calculus, and other algebraic concepts.

7. Boosts Confidence

- Solving exercises and cross-checking solutions boosts confidence.
- Clear and accurate solutions provided in RD Sharma make it easier to verify your answers and learn from mistakes.

8. Application-Oriented Learning

- This chapter includes application-based problems where quadratic equations are used to solve real-life scenarios.
- It helps students appreciate the relevance of mathematics beyond the classroom.