

Class 10 Mathematics - Quadratic Equations

Name: _____

Date: _____

Advanced Worksheet 3

Questions

1. A two-digit number is such that the product of its digits is 24. The sum of the digits is 10. Find the number.
2. The sum of two numbers is 20 and the sum of their squares is 208. Find the numbers.
3. A train travels 180 km at a certain speed. If the speed is increased by 15 km/h, the journey takes 1 hour less. Find the original speed.
4. The difference between two numbers is 5 and their product is 84. Find the numbers.
5. A rectangular plot has perimeter 70 m and area 300 m². Find its dimensions.
6. Which type of real-life situations commonly lead to quadratic equations?

Answer Key

1.

Let digits be x and y

$$x + y = 10$$

$$xy = 24$$

Digits = 4 and 6

Number = 46 or 64

2.

Let numbers be x and y

$$x + y = 20$$

$$x^2 + y^2 = 208$$

$$xy = 96$$

Numbers = 12 and 8

3.

Let speed = x km/h

$$180/x - 180/(x + 15) = 1$$

$$x^2 + 15x - 2700 = 0$$

$$(x + 60)(x - 45) = 0$$

Original speed = 45 km/h

4.

Let smaller number = x

$$x(x + 5) = 84$$

$$x^2 + 5x - 84 = 0$$

$$(x + 12)(x - 7) = 0$$

Numbers = 7 and 12

5.

$$l + b = 35$$

$$lb = 300$$

$$x^2 - 35x + 300 = 0$$

$$(x - 15)(x - 20) = 0$$

Dimensions = 15 m and 20 m

6.

Area, speed-time, age and number problems.

