

Name: \_\_\_\_\_

Unit 8: Quadratic Equations



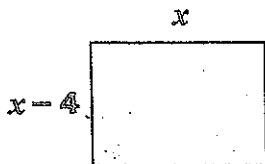
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Homework 10: Quadratic Word Problems

**\*\* This is a 2-page document! \*\***

**Area Problems:**

1. Given the diagram below find the value of  $x$  if the area is 21 square meters.



2. The dimensions of a rectangle can be given by  $x + 7$  and  $x + 2$ . If the area of the rectangle is 66 square inches, what are the dimensions of the rectangle?

3. The length of a rectangle is 6 meters more than its width. If the area of the rectangle is 135 square meters, find its dimensions.

4. The length of a rectangle is 1 meter less than its width. The area of the rectangle is 42 square meters. Find the dimensions of the rectangle.

**Projectile Motion Problems:**

5. When a cannonball is fired, the equation of its pathway can be modeled by  $h = -16t^2 + 128t$ .
- a. Find the maximum height of the cannonball.

- b. Find the time it will take for the cannonball to reach the ground.

6. When Joey dives off a diving board, the equation of his pathway can be modeled by  $h = -16t^2 + 15t + 12$ .

a. Find Joey's maximum height.

b. Find the time it will take for Joey to reach the water.

7. A toy rocket is launched from a platform that is 48 feet high. The rocket's height above the ground is modeled by  $h = -16t^2 + 32t + 48$ .

a. Find the maximum height of the rocket.

b. Find the time it will take for the rocket to reach the ground.

8. At the end of the school year, Rachel and Amber go to the roof of a 12-story building and throw their Algebra book off the edge. The equation of the pathway that each girl's textbook takes is given below. By how many seconds does Rachel's textbook beat Amber's to the ground?

Rachel:  $h = -16t^2 + 36t + 160$

Amber:  $h = -16t^2 + 50t + 160$