Solving Verbal Problems Leading to Quadratic Equations

Solve algebraically.

1. When 36 is subtracted from the square of a positive number, the result is 5 times the number.

2. Byron is 3 years older than Doug. The product of their ages is 40. How old is Doug?

3. Find two consecutive odd integers whose product is 99.

4. Three brothers have ages that are consecutive even integers. The product of the first and third boys' ages is 20 more than twice the second boy's age. Find the age of *each* of the three boys.

5. Tamara has two sisters. One of the sisters is 7 years older than Tamara. The other sister is 3 years younger than Tamara. The product of Tamara's sisters' ages is 24. How old is Tamara?

6. The length of a rectangular window is 5 feet more than its width, w. The area of the window is 36 square feet. Find the dimensions of the window.

7. A rectangle has an area of 24 square units. The width is 5 units less than the length. What is the length, in units, of the rectangle?

8. The length of a rectangle is 3 inches more than its width. The area of the rectangle is 40 square inches. What is the length, in inches, of the rectangle?

9. A contractor needs 54 square feet of brick to construct a rectangular walkway. The length of the walkway is 15 feet more than the width. Write an equation that could be used to determine the dimensions of the walkway. Solve this equation to find the length and width, in feet, of the walkway.

10. Javon's homework is to determine the dimensions of his rectangular backyard. He knows that the length is 10 feet more than the width, and the total area is 144 square feet. Write an equation that Javon could use to solve this problem. Then find the dimensions, in feet, of his backyard.

11. The area of the rectangular playground enclosure at South School is 500 square meters. The length of the playground is 5 meters longer than the width. Find the dimensions of the playground, in meters.