STORY PROBLEMS INVOLVING QUADRATICS

Solve, using a quadratic equation.

1. Suppose you are building a storage box of volume 4368 in³. The box will be 24 inches long. The height of the box will be 1 inch more than its width. Find the height and width of the box.

2. A banner is in the shape of a right triangle of area 63 in². The height of the banner is 4 inches less than twice the width of the banner. Find the height and the width of the banner.

3. A rectangular poster has an area of 190 in². The height of the poster is 1 inch less than twice its width. Find the dimensions of the poster.

4. A diver is standing on a platform 24 feet above the pool. He jumps from the platform with an initial upward velocity of 8ft./sec. Use the formula $\mathbf{h} = -16t^2 + vt + s$, where **h** is his height above the water, *t* is time, *v* is his starting upward velocity, and *s* is his starting height. How long will it take for him to hit the water?

5. A rectangular sheet of paper has area of 55 in². Its dimensions are (x + 2) inches by (x + 8) inches. What are the dimensions of the sheet of paper?

6. Suppose you are building an aquarium of volume 2880 in³. The aquarium will be 12 inches high. The base will be rectangle with a length 4 inches more than twice the width. Find the dimensions of the base.