

1. The length of a rectangle is 1 foot less than 3 times the width. The area is 310 ft^2 . Find the dimensions of the rectangle.

Step 1: Identify your variables and write an equation to help you solve this problem.

Step 2: Solve the equation. Be sure to state all solutions to the equation.

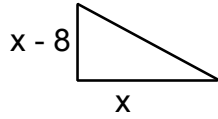
Step 3: Interpret the solution and answer the initial question.

2. The profit earned by an electronics company for selling printers is modeled by the function $P = -3x^2 + 33x - 72$, where x is the number of printers in hundreds, and P is measured in thousands of dollars. What two numbers of printers sold will result in zero profit?

Step 2: Solve the equation. Be sure to state all solutions to the equation.

Step 3: Interpret the solution and answer the initial question.

3. The height of a right triangle is 8 inches less than the length of its base. The area of the triangle is 90 square inches. What is the height and base of the triangle?



Step 1: Identify your variables and write an equation to help you solve this problem.

Step 2: Solve the equation. Be sure to state all solutions to the equation.

Step 3: Interpret the solution and answer the initial question.

4. A golf ball is hit from a hill, and its height can be modeled by $h = -16t^2 + 32t + 48$, where h is height in feet and t is time in seconds. How long is the ball in the air?

Step 2: Solve the equation. Be sure to state all solutions to the equation.

Step 3: Interpret the solution and answer the initial question.

5. A rectangular swimming pool is 50 meters long and 25 meters wide. A concrete walkway with a width of x meters will surround the pool. The combined area of the pool and the walkway will be 1736 square meters. Solve the equation $(50 + 2x)(25 + 2x) = 1736$ to find the width of the walkway. Justify that your answer is reasonable.

Step 2: Solve the equation. Be sure to state all solutions to the equation.

Step 3: Interpret the solution and answer the initial question.

6. A baseball player hits a ball from a height of 5 feet with an initial vertical velocity of 54 feet per second. The function $h = -16t^2 + 54t + 5$ models the height h in feet of the ball t seconds after it is hit. Will the ball reach a height of 50 feet? Justify your answer.

Step 2: Solve the equation. Be sure to state all solutions to the equation.

Step 3: Interpret the solution and answer the initial question.