

Name _____

Class _____

Date _____

Classwork ~ Applying quadratic equations to word problems

Directions: For each question:

- Draw a picture
- Identify the variable.
- Write an equation that relates to the variable.
- Solve the quadratic equation and label your answer.
- Reject one of the answers if necessary.

1. The length of a rectangle is 12 feet more than twice the width. The area of the rectangle is 320 square feet.
 - a) Write an equation that can be used to find the length and width of the rectangle.
 - b) What are the dimensions of the rectangle?
2. The length of a rectangle is 6cm less than twice its width. The area of the rectangle is 140cm^2 . Find the dimensions of the rectangle.
3. The base of a triangle is 2 feet more than twice its height. If the area of the triangle is 12 square feet, determine its base and height.
4. One leg of a right triangle is 14 cm longer than the other leg. The length of the hypotenuse is 26 cm. What are the lengths of the legs?
5. A small park is enclosed by four streets; two of which are parallel. The park is in the shape of a trapezoid. The perpendicular distance between the parallel streets is the height of the trapezoid. The portions of the parallel streets that border the park are the bases of the trapezoid. The height of the trapezoid is equal to the length of one of the bases and 20 feet longer than the other base. The area of the park is 9,000 square feet.
 - a) Write an equation that can be used to find the height of the trapezoid.
 - b) What is the perpendicular distance between the two parallel streets?
6. The length of an open box is 2 in. greater than its width. The box was made from an 80 square inches rectangular sheet of material. The height of the box is 1 in. Therefore 1-in x 1-in squares are cut from each corner. What were the dimensions of the original sheet of material?

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~ Homework ~

Directions: For problems 1-4, first draw a picture. Then solve showing all work in your notebook.

1. The width of a rectangular floor is 3 feet less than its length. If the area of the floor is 108 square feet, determine the dimensions of the floor.
2. At a kennel, each dog run is a rectangle whose length is 4 feet more than twice the width. Each run encloses 240 square feet. What are the dimensions of the runs?
3. The length of a rectangular park is 8 meters more than its width and the area of the park is 240 square meters. Find the dimensions of the park.
4. The area of a right triangle measures 63 square units. The base of the triangle exceeds that of its height by 5 units. Find the altitude of the triangle.

Reviewing Factoring

5. Factor completely:
 - a. $6x^2 - 96$
 - b. $5x^2 + 25x - 30$