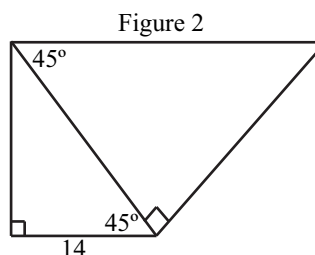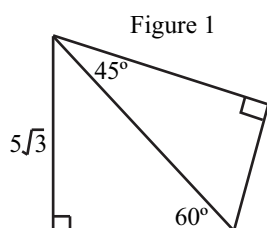# Handout 2: Pythagoras? More Like PythaGorgeous

Figure 1

Figure 2

1. Find the length of the hypotenuse if two legs of a right triangle are 6 and 8.

2. Find the length of the remaining side if a triangle's hypotenuse and leg are 15 and 9, respectively.

3. Using the knowledge of altitudes and geometric means, prove the Pythagorean theorem.

4. A triangle has three points at P (2, 2), Q (2, 8), and R (10, 2). Determine whether this is a right triangle and, if applicable, a Pythagorean triple.

5. Both legs of a right triangle equal $2\sqrt{2}$. What are the measurements of all angles?

6. Two legs of a right triangle are 9 and $3\sqrt{3}$. What are the measurements of all angles?

7. Find the perimeter of the quadrilateral in Figure 1.

8. Find the perimeter of the trapezoid created by the two triangles in Figure 2

9. A rectangular building has a central walkway of 196 feet along its diagonal. If this walkway meets the corners of the building at 30° and 60° angles, what are the dimensions of the building in feet rounded to the nearest foot?

10. A ramp is placed at a 30° angle with the floor and reaches a 10-foot high dock. How long is the ramp? How long would a ramp placed at a 45° angle have to be?