

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_  
Unit 14 Project: Right Triangle Applications Show all Work!

### Standards

- B.G.SRT.B.3 Apply properties of  $30^\circ$   $60^\circ$   $90^\circ$ ,  $45^\circ$   $45^\circ$   $90^\circ$ , similar, and congruent triangles.
- B.G.SRT.B.2 Apply basic trigonometric ratios to solve right triangle problems.
- B.G.SRT.B.4 Solve problems involving angles of elevation and angles of depression.

For each situation, complete the following:

- a. Draw a diagram that represents the situation. (4 points)
  - b. Set up an equation that represents the situation. (4 points)
  - c. Solve your equation. (8 points)
  - d. State your answer in the context of each situation. Be sure to include your units and **round segments to the nearest tenth and angles to the nearest degree.** (4 points)
1. A 10-ft ladder is placed against a house. If the base of the ladder is 3.5 feet from the base of the house, how high does the ladder reach on the house?
  
  
  
  
  
  
  
  
  
  
  2. One end of a wire will attach to a telephone pole 10 feet above the ground. The other end will attach to a bracket located 30 feet from the base of the pole. How long of a wire is needed?
  
  
  
  
  
  
  
  
  
  
  3. A wire needs to be attached to a phone pole that is perpendicular to the ground. The wire will make a  $60^\circ$  angle with the ground. It will be anchored to the ground 10 feet from the base of the pole. How high up the pole with the wire be?

4. In a right triangle, the leg opposite a  $32^\circ$  angle has a length of 18. Solve the triangle by finding the lengths of all unknown sides and the measures of all unknown angles.
5. If the square of the hypotenuse of an isosceles right triangle is 128, find the length of each side.