Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Right Triangle Trigonometric Project Problems

First: Complete all problems on this worksheet.

Second: Choose one of the problems to use for your project.

Third: Choose a project option

* Create a detailed drawing of the scenario. Make sure to show all work.
* Create a poster that clearly demonstrates how you solved your problem. Make sure to show all work with explanations.
* Write an essay that thoroughly explains how you solved your problem. Make sure to show all work.

1. A damsel is in distress and is being held captive in a tower. Her knight in shining armor is on the ground below with a ladder. When the knight stands 15 feet from the base of the tower and looks up at his precious damsel, the angle of elevation to her window is 60 degrees. How long does the ladder have to be?

2. A 12-meter flagpole casts a 9-meter shadow. Find the angle of elevation to the sun.

3. Suppose you’re flying a kite, and it gets caught at the top of the tree. You’ve let out all 100 feet of string for the kite, and the angle that the string makes with the ground is 75 degrees. Instead of worrying about how to get your kite back, you wonder. “How tall is that tree?”

4. A fire department’s longest ladder is 110 feet long, and the safety regulation states that they can use it for rescues up to 100 feet off the ground. What is the maximum safe angle of elevation for the rescue ladder?

5. An ant is looking up at you with an angle of elevation of 24°. You are 5 feet tall. How far is the ant from your foot?

6. When the plane had flown 5,125 feet from the airport where it had taken off, it had covered a horizontal distance of 4,750 feet. What is the angle at which the plane rose from the ground to the nearest degree?