Name: _____ Period: ____ Date: _____

4-1 Right Triangle Trigonometry Word Problems

Step 1: Draw a triangle.
Step 2: Label the triangle using the given information.
Step 3: Create and solve an equation to find the missing side or angle.

1. A ladder, 500 cm long, leans against a building. If the angle between the ground and the ladder is 57 degrees, how far from the wall is the bottom of the ladder? Round the answer to the *nearest tenth*.

2. The sides of a rectangle are 25 cm and 8 cm. What is the measure, to the *nearest degree*, of the angle formed by the short side and a diagonal of the rectangle?

3. A kite is flying 115 ft above the ground. The length of the string to the kite is 150 ft, measured from the ground. Find the angle, to the *nearest degree*, that the string makes with the ground.

4. An observation tower is 75 m high. A support wire is attached to the tower 20 m from the top. If the support wire and the ground form an angle of 46 degrees, what is the length of the support wire, to the *nearest tenth?*

5. At a point 30 feet from the base of a tree, the angle formed with the ground looking to the top measures 53°. Find, to the *nearest foot*, the height of the tree.

6. An observer is 120 feet from the base of a television tower, which is 150 feet tall. Find, to the *nearest degree*, the angle of elevation of the top of the tower from the point where the observer is standing.

7. The angle of elevation of the top of a flagpole from a point on the ground 30 meters from the base of the flagpole is 18 degrees. What is the height of the flagpole, to the *nearest meter*?

8. From the top of a lighthouse 160 feet high, the angle of depression of a boat out at sea is 24°. Find, to the *nearest foot*, the distance from the boat to the foot of the lighthouse. (The foot of the lighthouse is at sea level.)