

Name \_\_\_\_\_

Period \_\_\_\_\_ Date \_\_\_\_\_

## CW/HW 3.8 - Applications of Trigonometric Ratios

1) A tower casts a shadow that is 60 feet long when the angle of elevation of the sun is  $65^\circ$ .

a. Draw a detailed picture of this situation. Label it with the given information.

b. How tall is the tower? Show all of your work.

2) Matt is standing on top of a cliff 305 feet above a lake. The measurement of the angle of depression to a boat on the lake is  $42^\circ$ .

a. Draw a detailed picture of this situation. Label it with the given information.

b. How far is the boat from the base of the cliff? Show all of your work.

3) A ladder that is 30 ft long needs to reach 27 ft up a building.

a. Draw a detailed picture of this situation. Label it with the given information.

b. What should the angle with the ground be? Show all of your work.

4) You are standing 50 meters from a hot air balloon that is preparing to take off. The angle of elevation to the top of the balloon is  $28^\circ$ .

a. Draw a detailed picture of this situation. Label it with the given information.

b. Find the height of the balloon. Show all of your work.

5) John wants to measure the height of a tree. He walks exactly 100 feet from the base of the tree and looks up. The angle from the ground to the top of the tree is  $33^\circ$ .

a. Draw a detailed picture of this situation. Label it with the given information.

b. How tall is the tree? Show all of your work.

6) The flagpole in front of CB East casts a shadow 40 feet long when the measurement of the angle of elevation to the sun is  $31^\circ$ .

a. Draw a detailed picture of this situation. Label it with the given information.

b. How tall is the flagpole? Show all of your work.

7) Kelly is flying a kite to which the angle of elevation is  $70^\circ$ . The string on the kite is 65 meters long.

a. Draw a detailed picture of this situation. Label it with the given information.

b. How far is the kite above the ground? Show all of your work.

8) A straight waterslide is 175 feet above ground and is 200 feet long.

a. Draw a detailed picture of this situation. Label it with the given information.

b. What is the angle of depression to the bottom of the slide? Show all of your work.