Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Angles of Elevation and Depression

1. Angles of Elevation and Depression
2. The angle of elevation is the angle formed by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the line of sight looking up.



* 1. The angle of depression is the angle formed by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the line of sight looking down.



* 1. Notice … the angle of elevation and the angle of depression are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when in the same picture!



**Set up and solve the following. Start with a picture!**

**Example 1:** At a certain time of day the angle of elevation of the sun is $44°$. Find the length of the shadow cast by a building that is 30 meters high.

**Example 2:** The top of a lighthouse is 120 meters above sea level. The angle of depression from the top of the lighthouse to the ship is $23°$. How far is the ship from the foot of the lighthouse?

**Example 3:** A lighthouse is 100 feet tall. The angle of depression from the top of the lighthouse to one boat is$ 24°$. The angle of depression to another boat is $31°$. How far apart at the boats?

**Example 4:** Rachel spotted her car from a weather balloon. She knows her altitude is 82 meters and her angle of depression is 32º. She wants to know how far she is from her car.

**Example 5**: You stand 40 ft from a tree. The angle of elevation from you the top of the tree is 47º. How tall is the tree?

**Example 6**: The angle of elevation to the top of a building is 22º. You know the building is 450 meters tall. How far are you from the building?