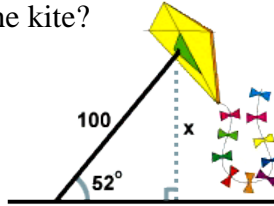# Angle of Elevation & Depression Graded Assignment

Draw a picture if one is not provided. Find all values to the nearest tenth. Show all work to receive full credit!

1. A man flies a kite with a 100 foot string. The angle of elevation of the string is $52\,^\circ$. How high off the ground is the kite?

   X = _____

2. From the top of a vertical cliff 40 m high, the angle of depression of an object that is level with the base of object from the base of the cliff?
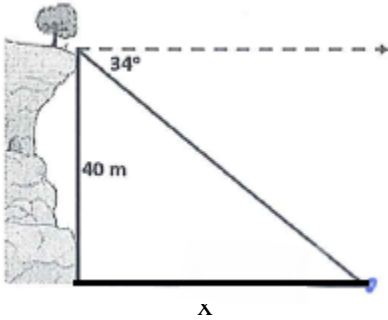
   X = _____

3. An airplane takes off 600ft in front of a 60 foot building. **<u>In order to clear the building by 10ft</u>**, what angle of elevation must the plane take off in order to avoid crashing into the building? Assume that the airplane flies in a straight line and the angle of elevation remains constant until the airplane flies over the building.
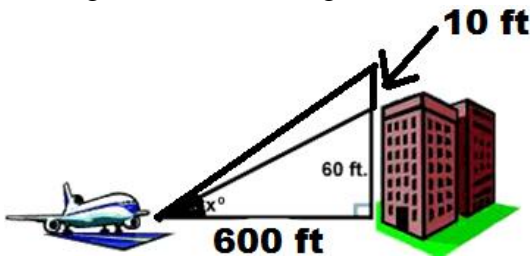
   X = _____

4. A 14 foot ladder is used to scale a 13 foot wall. At what angle of elevation must the ladder be situated in order to reach the top of the wall?

   The angle of elevation is

   _____

5. A person stands at the window of a building so that his eyes are 12.6 m above the level ground. An object is on the ground 58.5 m away from the building on a line directly beneath the person. Compute the angle of depression of the person's line of sight to the object on the ground.

   $\theta=$ _____

6. A ramp is needed to allow vehicles to climb a 2 foot wall. The angle of elevation in order for the vehicles to safely go up must be $30°$ or less, and the longest ramp available is 5 feet long. Can this ramp be used safely?

5

2

$x°$

X = _____

7. From an airplane at an altitude of 1200 m, the angle of depression to a rock on the ground measures 28°. Find the distance from the plane to the rock. Draw Picture 1st!!!!

The distance from the plane to the rock is

_____

8. From a point on the ground 12 ft from the base of a flagpole, the angle of elevation of the top of the pole measures 53°. How tall is the flagpole?

The height of the flagpole is

_____

9. From a plane flying due east at 265 m above sea level, the angles of depression of two ships sailing due east measure 35° and 25 °. How far apart are the ships?
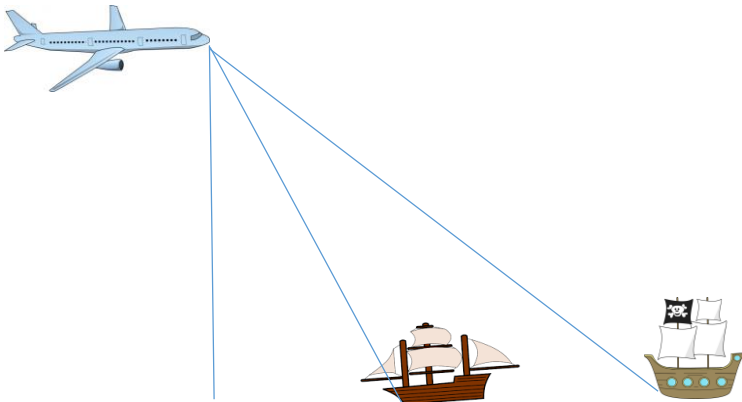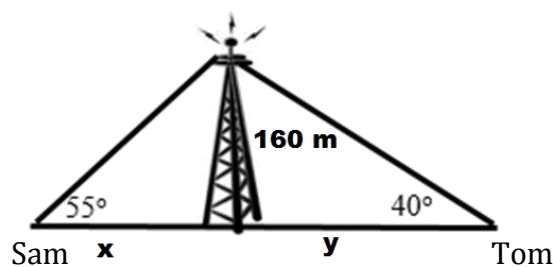
X = _____

Y = _____

Z = _____

The two ships are

_____ apart.

10. Tom and Sam are on the opposite sides of a tower of 160 meters height. They measure the angle of elevation of the top of the tower as 40° and 55° respectively. Find the distance between Tom and Sam.

160 m

55°   40°

Sam   **x**   **y**   Tom

X = _____

Y = _____

Tom and Sam are

_____ apart.