# Angles of Elevation and Depression

Definition:

Picture:

Draw and label a picture for each problem. Then, solve each problem. Round decimals to the nearest tenth.

1. Brian's kite is flying above a field at the end of 65m of string. If the angle of elevation to the kite measures 70°, and Brian is holding the kite 1.2 m off the ground. How high above the ground is the kite flying?

2. From an airplane at an altitude (height) of 1200 m, the angle of depression to a rock on the ground measures 28°. Find the ground distance from the plane to the rock.

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

4. ★ 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?

5. A man flies a kite with a 100 foot string. The angle of elevation of the string is 52° How high off the ground is the kite?
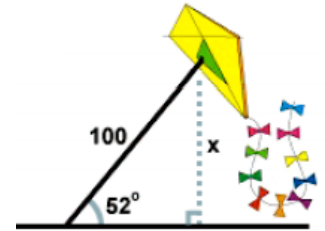
6. From the top of a vertical cliff 40 m high, an engineer spots a large rock on the valley floor below through her scope. The angle of depression to the rock is 34°. How far is the rock from the base of the cliff?

7. An airplane takes off 200 <u>yards</u> in front of a 60 <u>foot</u> building. At 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.
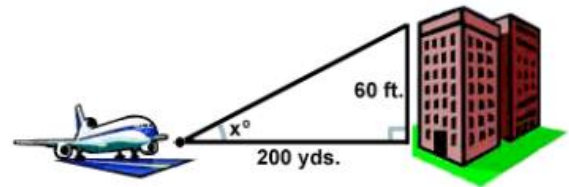
8. A 14 foot ladder is used to scale a 13 foot wall. At what angle of elevation must the ladder be situated in order to reach the top of the wall?

9. 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 bottom of the building. Compute the angle of depression of the person's line of sight to the object on the ground.

10. A ramp is needed to allow vehicles to climb onto a parking lot located 2 feet higher than the entry road. The angle of elevation must be 30° or less for safety concerns, and the longest ramp available is 5 feet long. Can this ramp be used safely?