Apprenticeship Math 12
ASSIGNMENT: Angle of Elevation and
                    Angle of Depression

Name: _____

Date: _____

Round all answers to the nearest tenth.

1. A man flies a kite with a 100 foot long string. The angle of elevation of the string is 52°. How high off the ground is the kite?

2. From the top of a vertical cliff 40 m high, the angle of depression to an object that is level with the base of the cliff is 34°. How far is the object from the base of the cliff?

3. An airplane takes off 200 yards in front of a 60 foot 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.
    Remember: 1 yard = 3 feet

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?

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 a horizontal distance of 58.5 m away from the building. Compute the angle of depression of the person's line of sight to the object on the ground.

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?

7. Roof trusses often use right triangles to make a flimsy 2 x 4 more rigid to hold up the weight of the roof. If a house is 40 feet wide and the roof is an isosceles triangle with base angles of 30°, how far is it from the bottom edge of the roof to the peak?

8. You are 6 feet tall and you spot a cat up in a tree. When you are 25 feet from the tree, the angle of elevation from your eyes to the cat is 45°. How high off the ground is the cat?

1. 78.8 ft
2. 59.3 m
3. 5.7°
4. 68.2°
5. 12.2°
6. Yes (23.6°)
7. 11.5 ft
8. 31 ft