$\qquad$
and Depression

Date: $\qquad$
Draw a sketch for each problem. 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 $52^{\circ}$. 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 $34^{\circ}$. 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 $30^{\circ}$ 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 $2 \times 4$ 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 $30^{\circ}$ ，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 $45^{\circ}$ ．How high off the ground is the cat？

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