1. Joe is holding his kite string 3 feet above the ground. The distance between his hand and a point directly under the kite is 95 feet. If the angle of elevation to the kite is $50°$, find the height of his kite to the nearest foot.

2. A surveyor 100 meters from the base of a cliff measures the angle of elevation to the top of the cliff as $57°$. What is the height of the cliff?

3. At a point 180 feet from the base of the building, the angle of elevation to the fifth floor is $52°$ and to the tenth floor is $83°$. How much higher is the tenth floor than the fifth floor?

4. A 32 foot ladder is placed against a wall at $62°$ with the ground. How far away from the wall is the base of the ladder?

5. A person at the top of a cliff 125 feet tall sees a boat in the water below. His sighting of the boat is at an angle of depression of $24°$. How far is the boat from the base of the cliff?

6. A 47 inch goal post is leaning against a fence. If the post is 22 inches away from the base of the fence, what angle is formed between the ground and the post?

7. A plane takes off at an elevation of $33°$. What will the ground distance be of the plane be when it reaches an altitude of 32,050 feet?

8. The ski slope known as Devil's Hill has an elevation from the ground of $45°$. If the distance down the slope is 1500 meters, what is the altitude of the hill?

9. A wire supporting a radio tower is positioned 145 feet up the tower. It forms a 45° angle with the ground. About how long is the wire?

10. Lauren is at the top of a 55 meter lookout tower. From an angle of depression of $37°$, she spots Evan walking toward her. How far is Evan from the base of the tower?

11. A kite is flying at an angle of $63°$ with the ground. If all 250 feet of string are out, and there is no sag in the string, how high is the kite?

12. A 24 foot ladder is placed against a wall at $55°$ with the ground. How far away from the wall is the base of the ladder?

13. A 32 in. bat is leaning against a fence. If the bat is 15 in. away from the base of the fence, what angle is formed between the ground and the bat?

14. A ramp for unloading a moving truck has an angle of elevation of $32°$. If the top of the ramp is 4 feet above the ground, estimate the length of the ramp.

15. Tabitha's eyes are 5 feet above the ground as she looks up to a bird's nest in a tree. If the angle of elevation is $74.5°$ and she is standing12 feet away from the tree's base, what is the height of the bird's next to the nearest foot?

16. The back of a moving truck is three feet off of the ground. What length does a ramp off the back of the truck need to be in order for the angle of elevation to be $20°$?

17. A pilot is flying at an altitude of $26{,}000$ ft. when the airplane begins a $2°$ descent. How far is the airplane from the start of the runway (in ground distance)?

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

19. Jessie is building a ramp for loading motorcycles onto a trailer. The trailer is 2.8 feet off of the ground. To avoid making it too difficult to push a motorcycle up the ramp, Jessie decides to make the angle between the ramp and the ground $15°$. Find the length of the ramp.

20. . An eagle 300 feet in the air spots its prey on the ground. The angle of depression to its prey is 15°. What is the horizontal distance between the eagle and its prey? Round to the nearest foot.