

1. A ramp to a building has a height of 4 feet and the angle of elevation is 33° . How long is the ramp?

$$7.34 \text{ ft}$$

2. An equilateral triangle has a side length of 13 feet. Find the height of the triangle.

$$6.5\sqrt{3} \text{ ft}$$

3. If a kite is 40 feet off the ground and the string holding the kite is 42 feet long, what is the angle of elevation to the kite?

$$72^\circ$$

4. A 15 foot ladder is leaned against a house. If the base of the ladder is 4 feet from the house, what angle does the ladder make with the ground?

$$75^\circ$$

5. A building casts a shadow that is 100 ft long. What is the height of this building when the angle of elevation to the sun is 60 degrees?

$$173.21 \text{ ft}$$

6. The area of a square is 16 in^2 . Find the length of the diagonal.

$$4\sqrt{2}$$

7. A boat is sailing and spots a shipwreck 650 feet below the water. A diver jumps from the boat and swims 935 feet to reach the wreck. What is the angle of depression from the boat to the shipwreck, to the nearest degree?

44°

-
8. A 5 ft tall bird watcher is standing 50 feet from the base of a large tree. The person measures the angle of elevation to a bird on top of a tree as 71.5°. How tall is the tree? Round to the nearest tenth.

154.4 ft

-
9. A block slides down a 45° slope for a total of 2.8 meters. What is the change in the height of the block? Round to the nearest tenth.

1.98 → 2 m

-
10. A projectile has an initial horizontal velocity of 5 meters per second and an initial vertical velocity of 3 meters per second upwards. At what angle was the projectile fired, to the nearest degree?

31°

-
11. A construction worker leans his ladder against a building making a 60° angle with the ground. If his ladder is 20 feet long, how far away is the base of the ladder from the building to the nearest tenth?

10 ft