6.11 Right Triangles Application Part I Key Geometry

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 ft

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

$6.5\sqrt{3}$ or 11.26 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°

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°

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 ft

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

$4\sqrt{2}$ or 5.66 in

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.

154.4ft

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 → 2m

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?

10ft