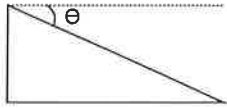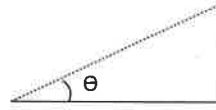4.3 Right Triangle Trig Word Problems Day 1

Trigonometric functions are often used to analyze real-life situations. The easiest way to understand these problems is to first draw a diagram to illustrate the problem.

Angle of Depression: **Angle of Elevation:**

Part I Directions: Draw diagrams to illustrate the problem. Round to the nearest hundredth.

1) A steel cable zip-line is being constructed for competition on a reality television show. One end of the zip-line is attached to a platform on top of a 150 foot pole. The other end of the zip-line is attached to the top of a 5 foot stake. The angle of elevation from the top of the stake to the top of the platform is 23°.

    a) How long is the zip-line?

    b) How far is the stake from the pole?

2) Standing on top of a 235 foot tall building, you spot your friend on the ground who is 94 feet away from the building.

    a) What is the angle of depression you had to look to spot your friend?

    b) What is the distance between you and your friend?

3) To illuminate the entrance of Seven Lakes High School, a spot light is mounted on a 39.5 foot pole. The base of the pole is 37.2 feet from the entrance.

    a) What is the angle of depression of the spot light?

    b) How far does the spotlight shine?

Part II Directions: Draw diagrams to illustrate the problem. Leave answer in simplest reduced radical form.

4) The guy wire to support a radio tower is positioned 100 feet up the tower. It forms a 60° angle with the ground. How long is the wire?

5) A skateboard ramp is placed on a 4 foot high wall with the angle of elevation to be 30° with the ground.

    a) What is the length of the skateboard ramp?

    b) How far way is the base of the skateboard ramp with the wall?

6) A NASA recovery helicopter hovers 75 feet above a space capsule. If the angle of depression to the recovery ship is 45°, how far is the ship from the space capsule?