

Trig 1.8 ~ Models and Applications of Right Triangles

In this lesson you will learn to:

- Solve real-life problems involving right triangles.
- Solve real-life problems involving directional bearings

Let's use our knowledge of right triangles to solve a few problems.

Example 1: You are standing 100 feet from the base of a platform from which people are bungee jumping. The angle of elevation from your position to the top of the platform is 53° . What is the height of the bungee platform?

- a) Draw a sketch of the situation, labeling known and unknown quantities.
- b) Write an equation involving the unknown height of the platform.
- c) Find the height of the platform.

Example 2: From a point 50 feet from the base of a building, the angles of elevation to the base of the weather vane and the peak of the weather vane (located on the corner of the building) are 35° and 42° respectively.

- a) Draw a sketch of the situation, labeling known and unknown quantities.
- b) Write an equation involving the unknown height of the weather vane.
- c) Find the height of the weather vane.

Example 3: A tight-rope walker ties a 75-ft rope from the ground to the top of a 40-ft post.

- a) Draw a sketch of the situation, labeling known and unknown quantities.
- b) Write an equation involving the unknown angle between the rope and ground.
- c) Find the angle that the rope makes with the ground.

Example 4: A ship travels at a bearing of S 32° W for 150 miles. How many miles south and west of the original position is it?

- a) Draw a sketch of the situation.
- b) Find the requested distances.

Example 5: A plane is 140 miles north and 62 miles west of the landing strip. What should their bearing be to head directly to the landing strip?

- a) Draw a sketch of the situation.
- b) Find the requested bearing.