In this lesson you will:
> • use trigonometry to solve problems involving right triangles

*Add "angle of elevation" and "angle of depression" to your dictionary.

Right triangle trigonometry is often used indirectly to find the height of a tall object. To solve a problem of this type, measure the angle from the horizontal to your line of sight when you look at the top or bottom of an object.
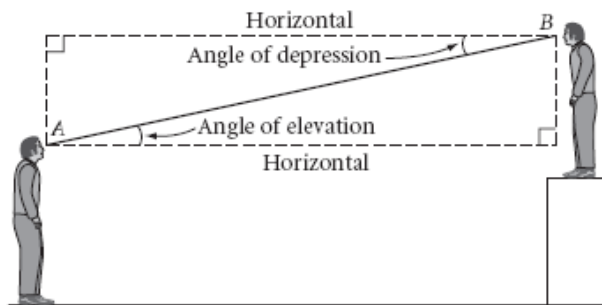

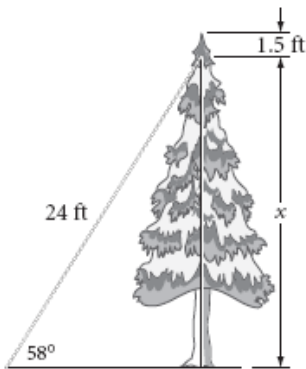If you look up, you measure the angle of elevation. If you look down, you measure the angle of depression.

•Example 1: The angle of elevation from a sailboat to the top of a 121-foot lighthouse on the shore measures 16°. How far is the sailboat from the lighthouse?
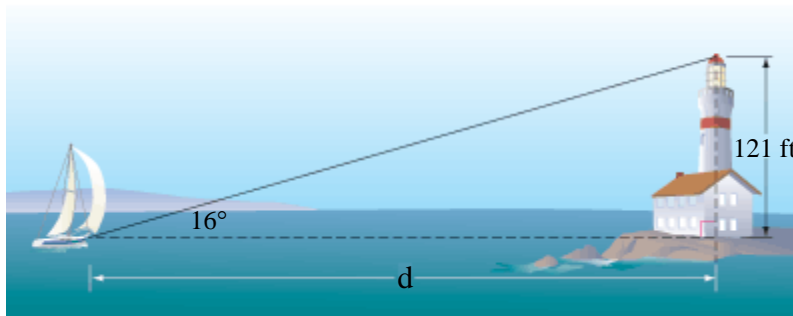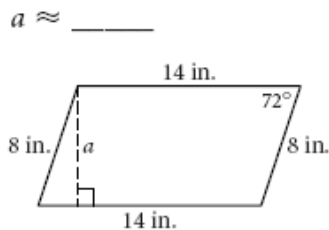
•Example 2: A salvage ship's sonar locates wreckage at a 12° angle of depression. A diver is lowered 40 meters to the ocean floor. How far does the diver need to walk along the ocean floor to the wreckage?

Angle of depression

40 m   12°

12°

d
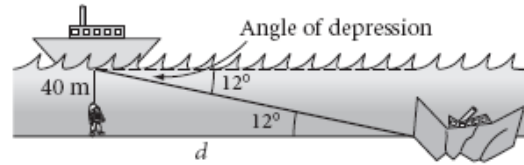
•Example 3: An evergreen tree is supported by a wire extending from 1.5 feet below the top of the tree to a stake in the ground. The wire is 24 feet long and forms a 58° angle with the ground.   How tall is the tree?

1.5 ft

24 ft

x

58°

•Example 4:

$a \approx$ _____

14 in.

72°

8 in. a 8 in.

14 in.

⇒**ASSIGNMENT**: _____