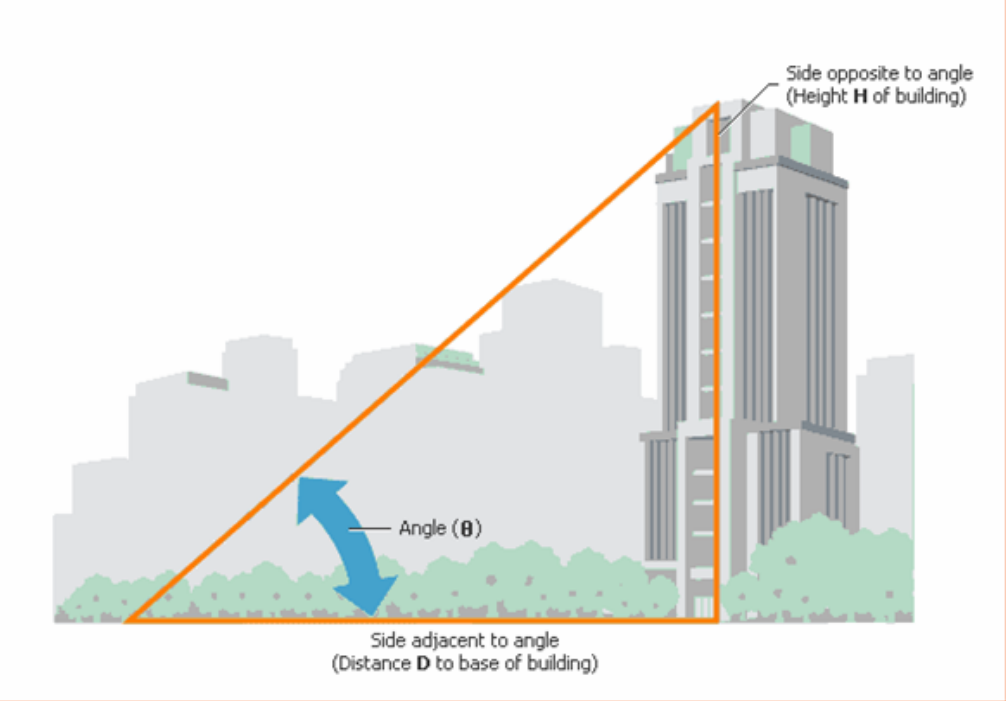
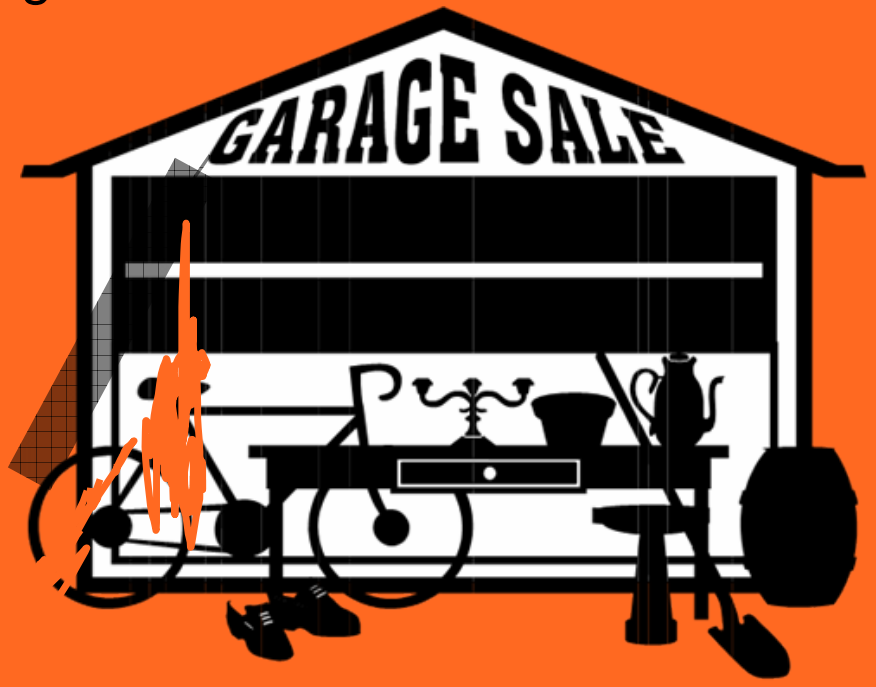
Application of Trigonometric Ratios

Problem Solving 1



Trigonometry can be used to solve problems involving right triangles. Right triangle trigonometry is often used to find
the height of a tall object indirectly.

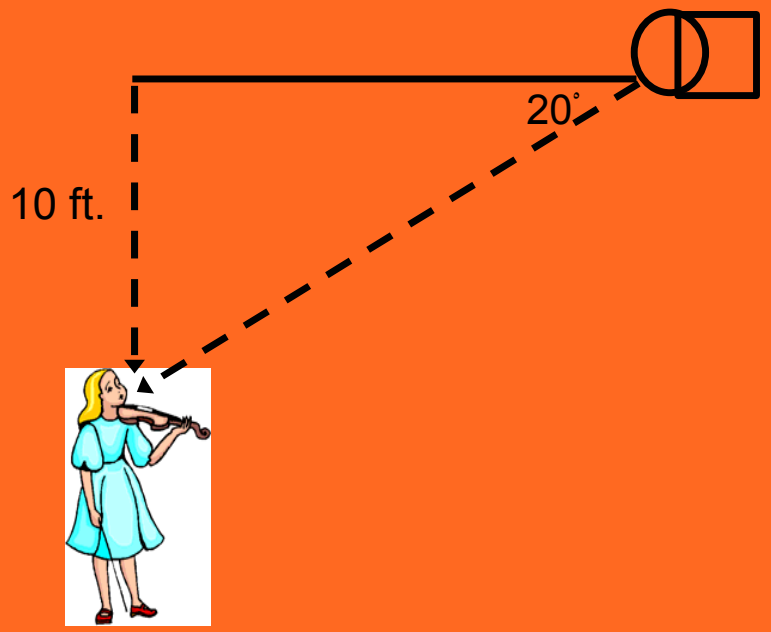
Problem Solving 2



A ladder is leaning against a building as shown to the right. The ladder reaches a height of $5\sqrt{3}$ on the building. The ladder makes an angle of 30° with the wall.

1. What angles does the ladder make with the ground?
2. How long is the ladder?
3. How far is the base of the ladder from the base of the ladder from the base of the building?

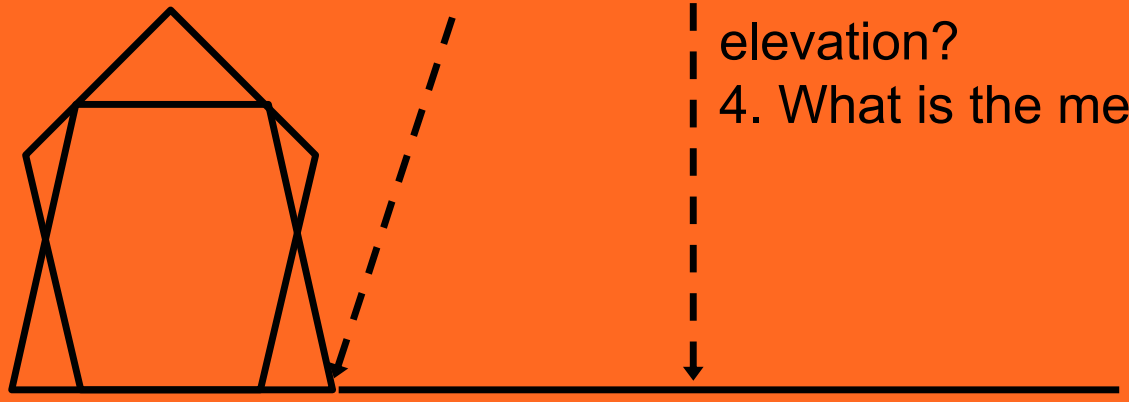
Problem Solving 3
Work Session Begins



The main character in a play is playing a solo, and the lighting technician needs to shine a spotlight into the actor's face. The light being directed is attached to the ceiling that is 10 feet above the actor's face.

1. At an angle of 20°, how far away from the actor should the light be?
2. what if the lighting technician wants to shine the light at an angle of 30°? At 32°?

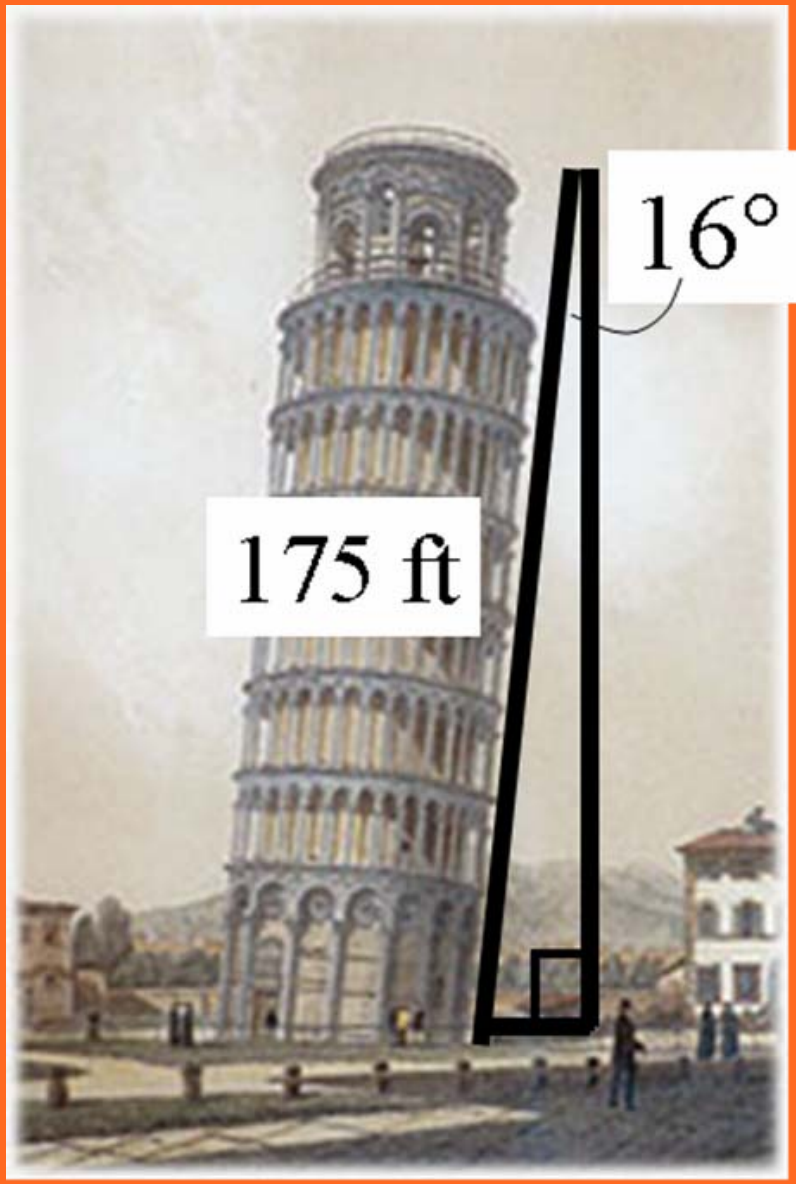
Problem Solving 4



An airport is tracking the path of one of its incoming flights. The distance to the plane is 850 ft. (from the ground) and the altitude of the plane is 400 ft.

1. What is the sine of the angle of elevation?
2. What is the cosine of the angle of elevation?
3. What is the tangent of the angle of elevation?
4. What is the measure of the angle itself?

Problem Solving 5



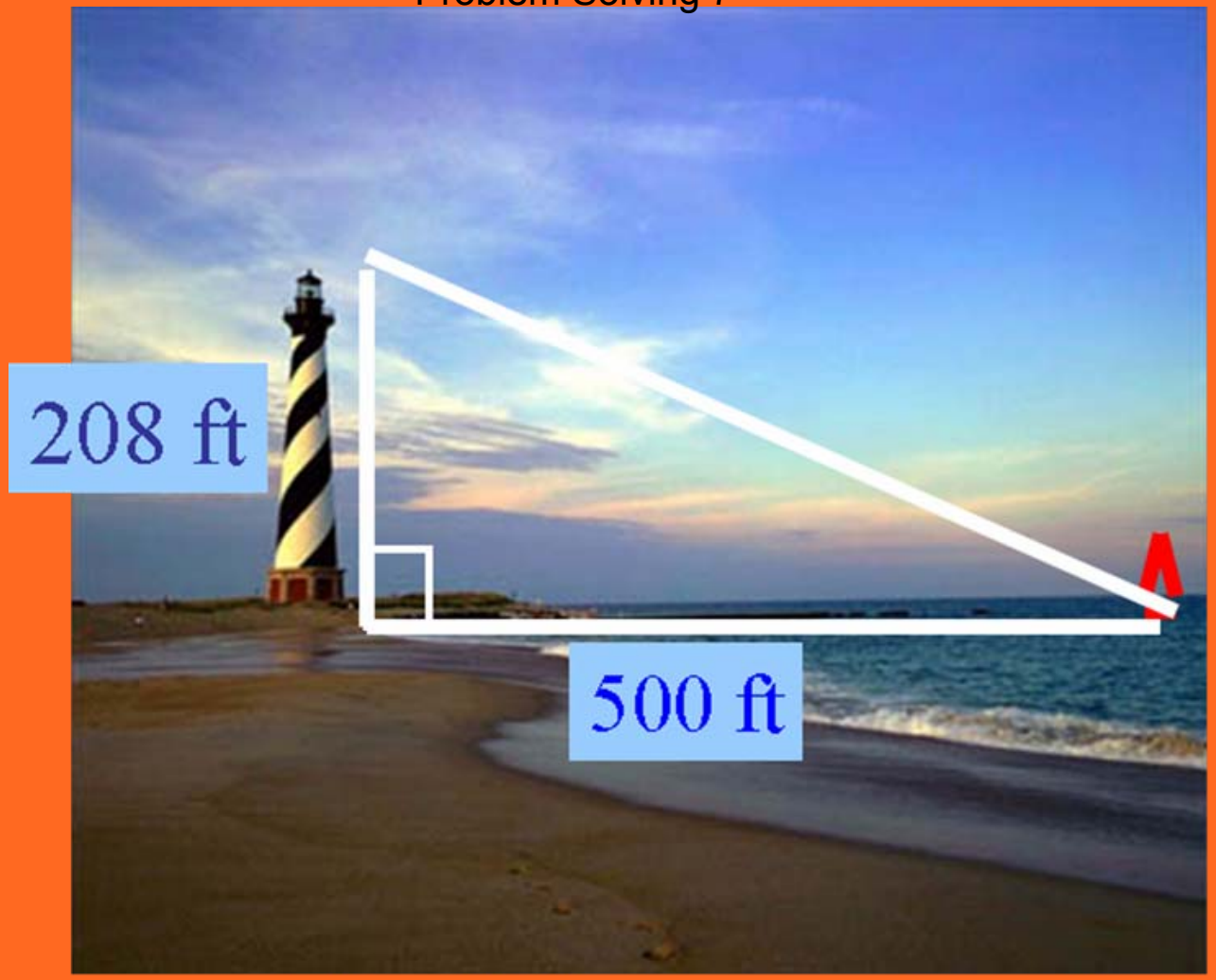
How high is this famous structure?

Problem Solving 6

A ladder makes a 48° angle with the ground.

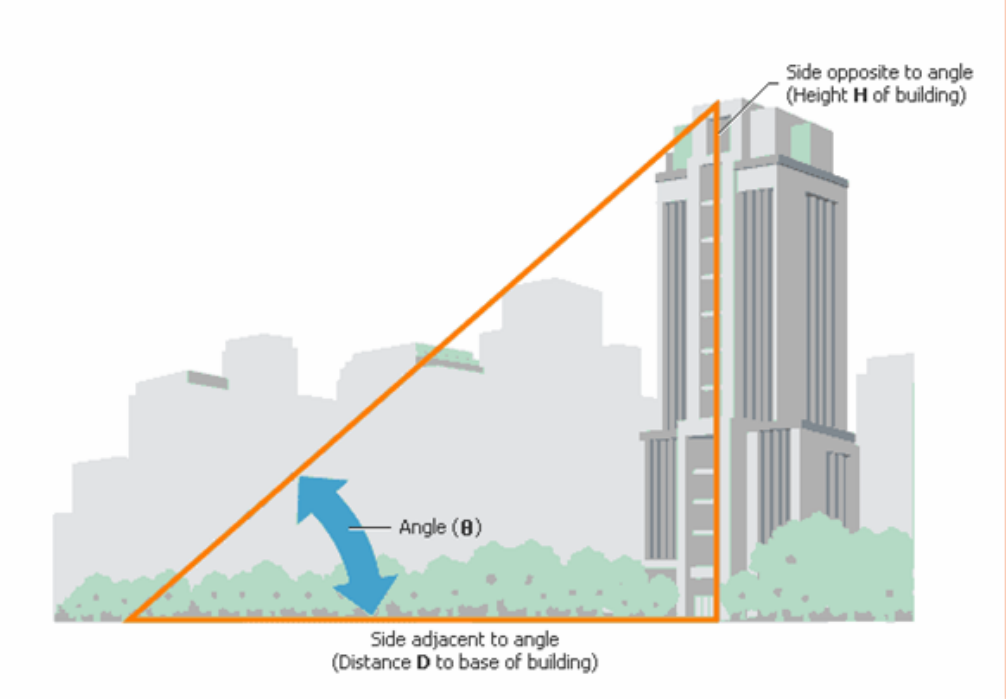
How long is the ladder?

Problem Solving 7



Find the angle of depression from the lighthouse to the buoy?

Problem Solving 8



Find the angle of elevation if you are standing 400ft away and the building is 850 ft tall?