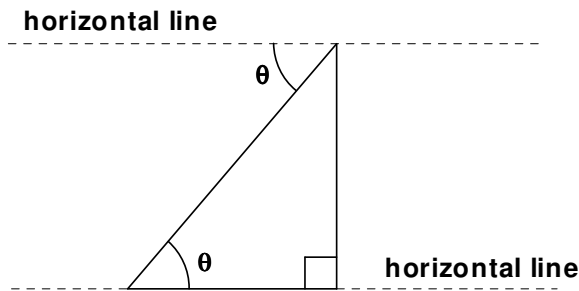


Triangle Trigonometry – Right Triangle Word Problems



- **angle of elevation** → an angle between a horizontal line

where the line of sight is _____ the horizontal line

- **angle of depression** → an angle between a horizontal line

where the line of sight is _____ the horizontal line

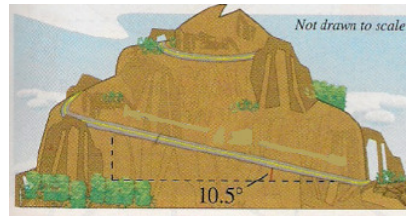
Example 1: Finding the Height of a Palm Tree

A palm tree casts a shadow of 18 feet long. The angle of elevation of the sun is 25.7° . Find the height of the palm tree.



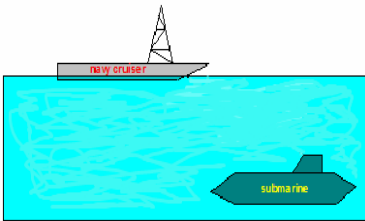
Example 2: Finding the Length of a Mountain Road

A sign on a roadway at bottom of a mountain road indicates that the road will incline 10.5° with the ground. The altitude for a car ascending up the mountain road is 3,850 ft. Find the length of the mountain road in miles.



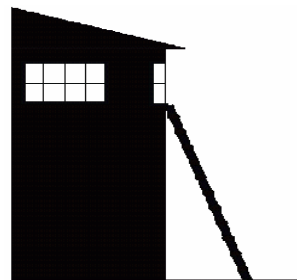
Example 3: Depth of a Submarine

The sonar of a navy cruiser detects a submarine that is 4000 feet from the cruiser. The angle between the water line and the submarine is 34° . How deep is the submarine?



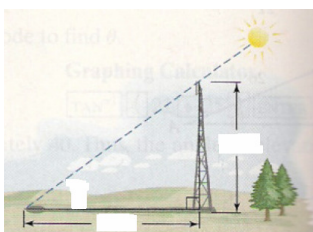
Example 4: Finding the Angle Formed by Ladder

A 20-ft ladder leans against a house and the base of the ladder is 5 feet from the base of the house. What is the angle formed by the ladder and the ground?



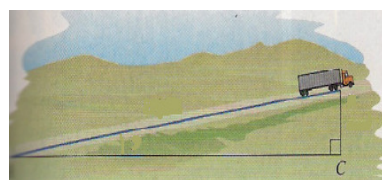
Example 5: Finding the Angle of Elevation of Sun

A cell phone tower is 124'4" tall and casts a 172-foot shadow. What is the angle of elevation of the sun to the top of the tower?



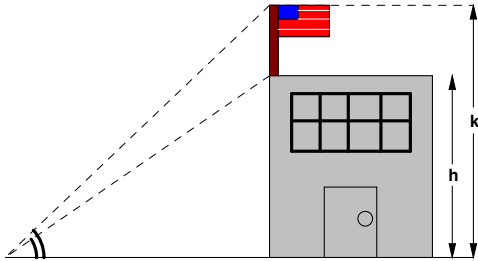
Example 6: Horizontal Distance of a Road

A truck is driving on a road that is inclined at an angle of 5° . The distance the truck traveled on the road is 435 feet. Find the horizontal distance that the truck traveled.

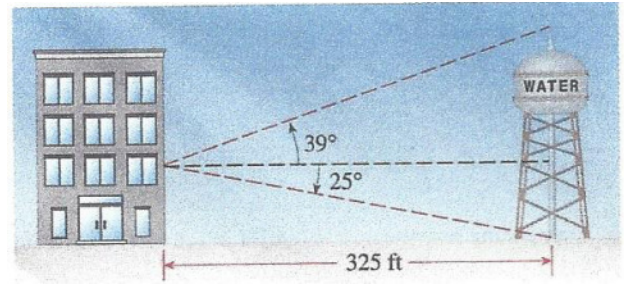


Example 7: Height of Flagpole on Top of Building

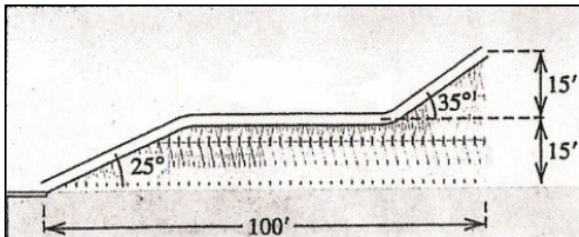
From a point on the ground 500 feet from the base of the building, it is observed that the angle of elevation to the top of the building is 24° and the angle of elevation to the top of the flagpole atop of the building is 27° . Find the height of the flagpole.

**Example 8: Height of a Water Tower**

What is the height of the water tower?

**Example 9: RT WP with Multiple Steps**

Shown in the figure is part of a design for a water slide. Find the total length of the slide.

**Example 10: RT WP with NO picture**

A person is flying a kite and holds the string a certain amount of feet above the ground. The kite has a 350 feet string that is taut and makes 56° angle with the horizontal. Find how high the person is holding the kite above the ground if the kite is flying 295 feet high.