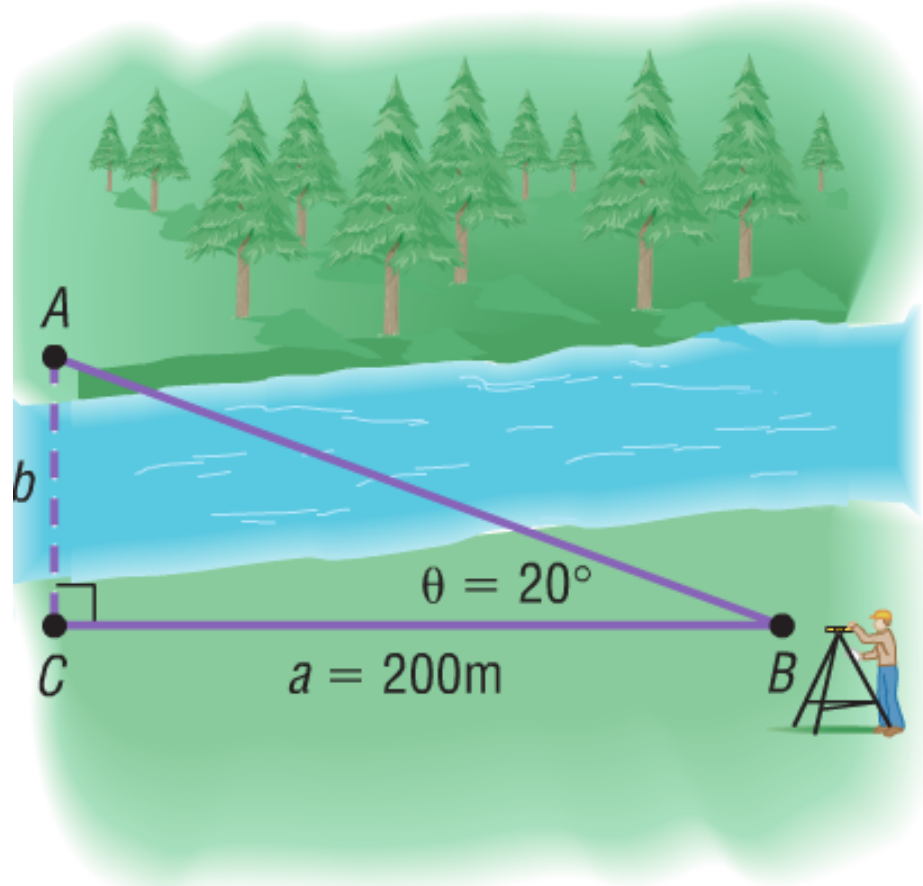


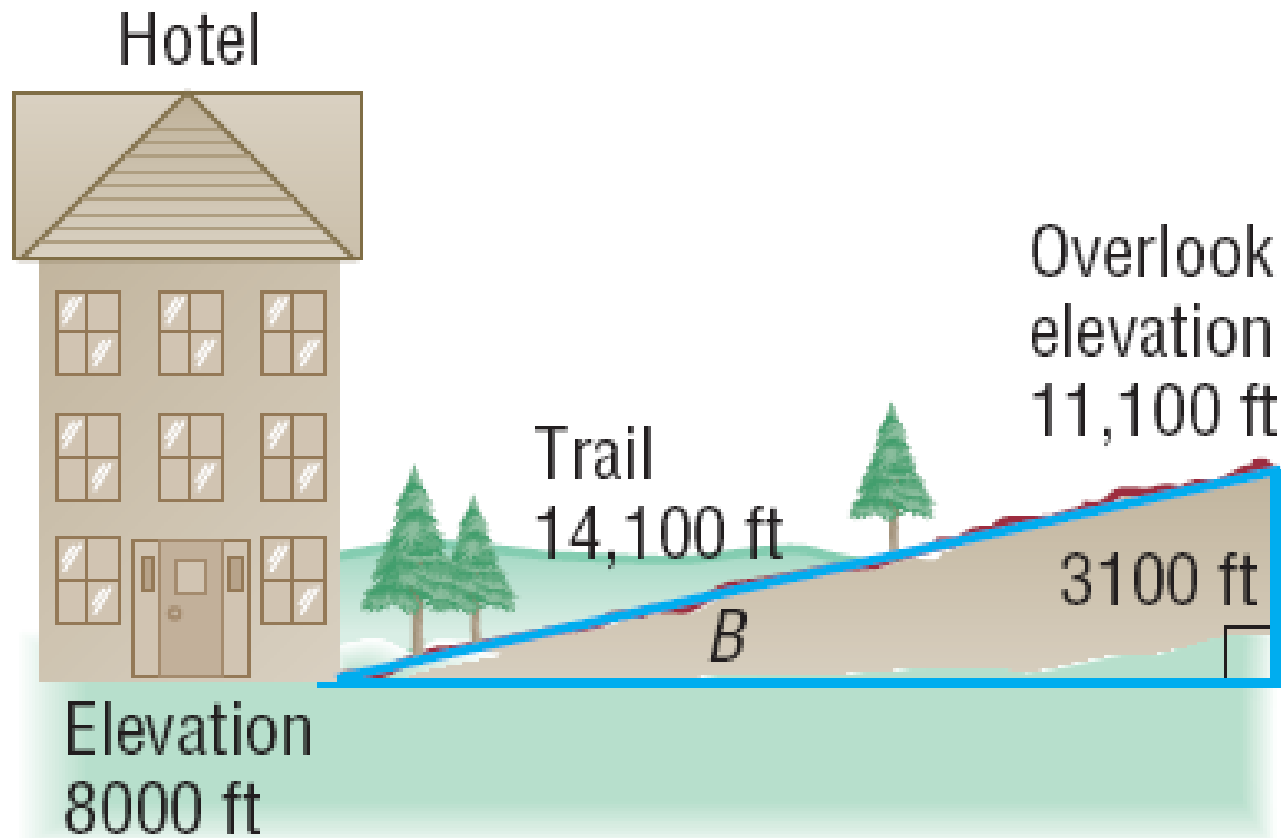
Learning Target: I can use the appropriate tool to find an angle or side in a right triangle.

A surveyor can measure the width of a river by setting up a transit* at a point C on one side of the river and taking a sighting of a point A on the other side. Refer to Figure 37. After turning through an angle of 90° at C , the surveyor walks a distance of 200 meters to point B . Using the transit at B , the angle β is measured and found to be 20° . What is the width of the river rounded to the nearest meter?

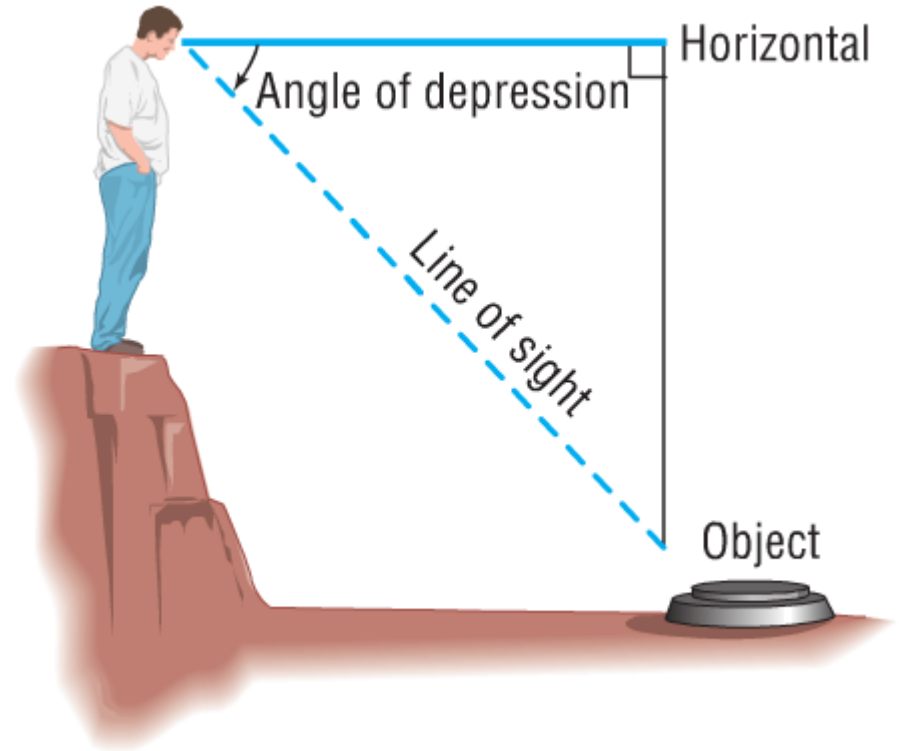
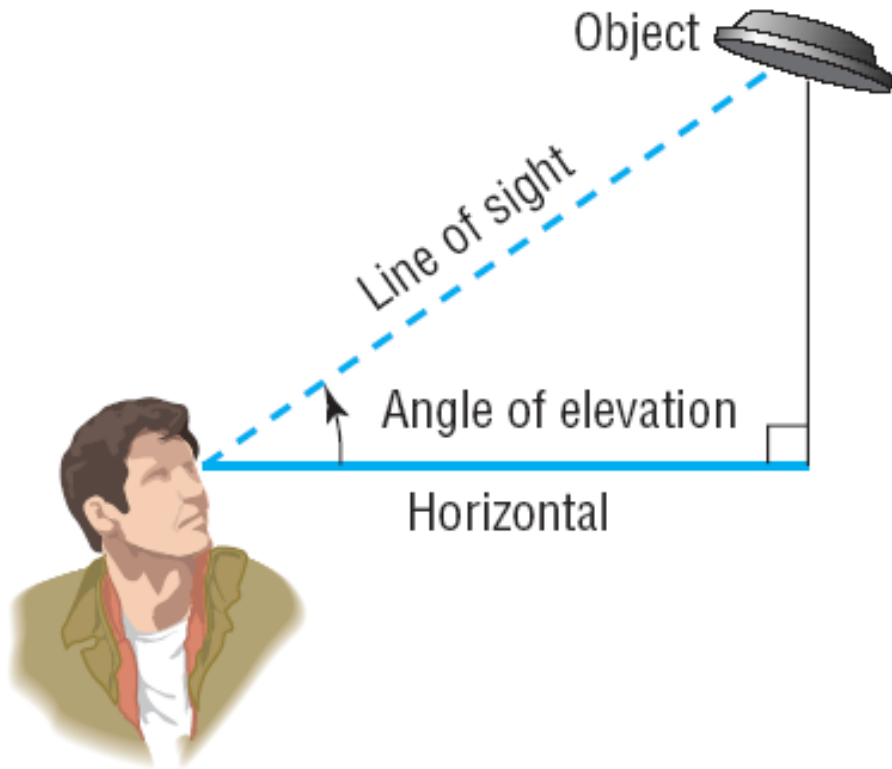


Learning Target: I can use the appropriate tool to find an angle or side in a right triangle.

A straight trail leads from the Alpine Hotel, elevation 8000 feet, to a scenic overlook, elevation 11,100 feet. The length of the trail is 14,100 feet. What is the inclination (grade) of the trail? That is, what is the angle B in Figure 4?

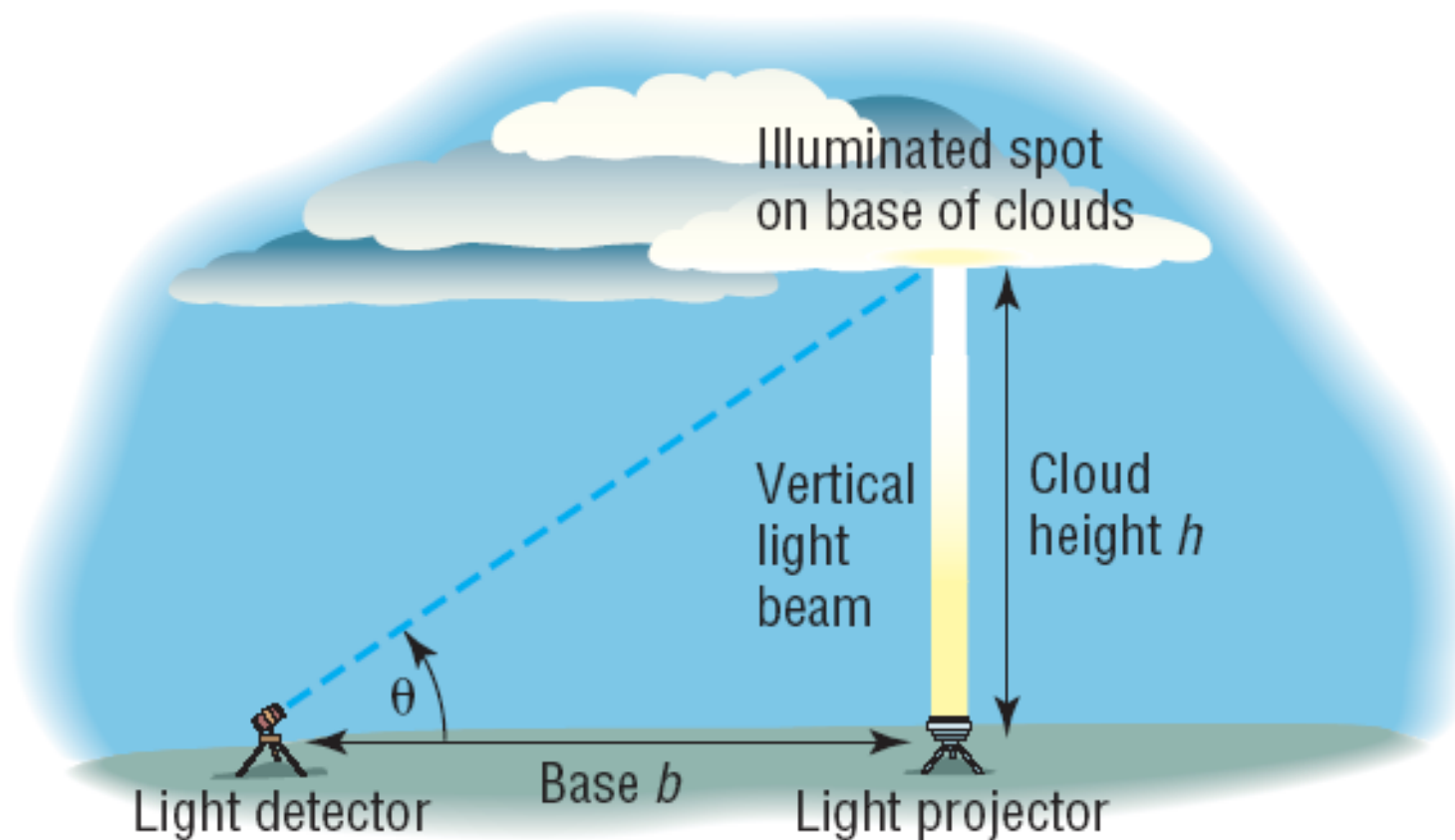


Learning Target: I can use the appropriate tool to find an angle or side in a right triangle.



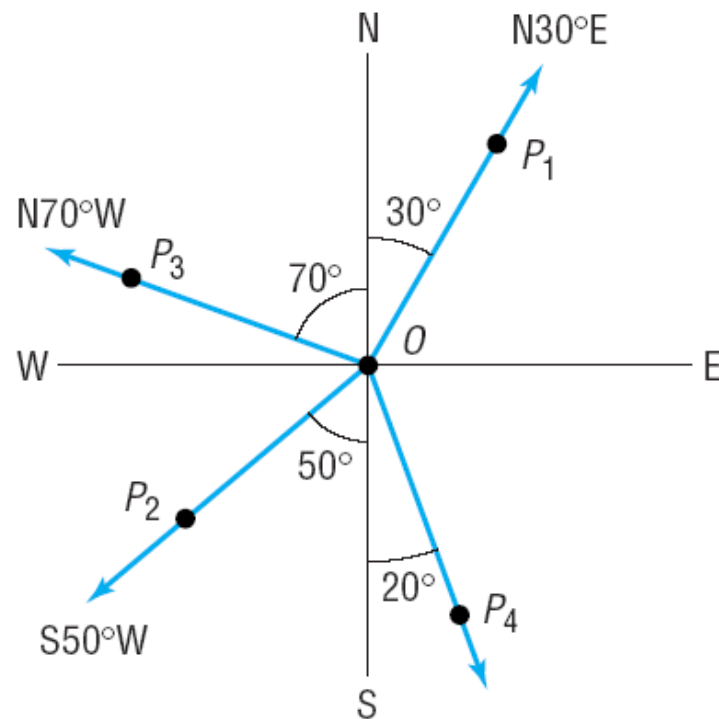
Learning Target: I can use the appropriate tool to find an angle or side in a right triangle.

Meteorologists find the height of a cloud using an instrument called a **ceilometer**. A ceilometer consists of a **light projector** that directs a vertical light beam up to the cloud base and a **light detector** that scans the cloud to detect the light beam. See Figure 39(a). On December 1, 2004, at Midway Airport in Chicago, a ceilometer with a base of 300 feet was employed to find the height of the cloud cover. If the angle of elevation of the light detector is 75° , what is the height of the cloud cover?



Learning Target: I can use the appropriate tool to find an angle or side in a right triangle.

In navigation and surveying, the **direction** or **bearing** from a point O to a point P equals the acute angle θ between the ray OP and the vertical line through O , the north-south line.



A runner is jogging south at 4 mph for 7 hours. The runner then turns 30 degrees towards the west and runs at 8 mph for 5 hours. Draw a diagram representing the runner's path.

Learning Target: I can use the appropriate tool to find an angle or side in a right triangle.

A ship leaves the port of Miami with a bearing of $S80^{\circ}E$ and a speed of 15 knots. After 1 hour, the ship turns 90° toward the south. After 2 hours, maintaining the same speed, what is the bearing to the ship from port?