§8.1 Applications Involving Right Triangles
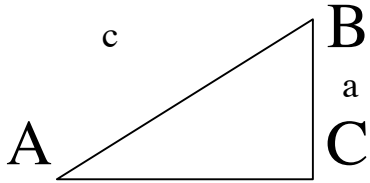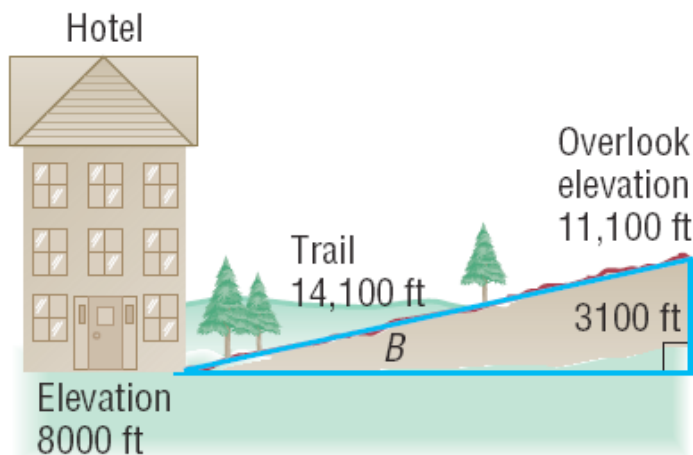
<u>Example 1</u> Solving a right triangle. Find all angles and sides of the following right triangle.

$34.2°$ b = 19.4

<u>Example 2</u>   A safety regulation states that the maximum angle of elevation for a rescue ladder is $72°$. A fire department's longest ladder is 110 feet. What is the maximum safe rescue height?

Example 3 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 the figure?

Hotel

Overlook
elevation
11,100 ft

Trail
14,100 ft

B

3100 ft

Elevation
8000 ft

Example 4 At a point 200 feet from the base of a building, the angle of elevation to the bottom of a smokestack is $35°$, whereas the angle of elevation to the top is $53°$. Find the height s of the smoke stack alone.