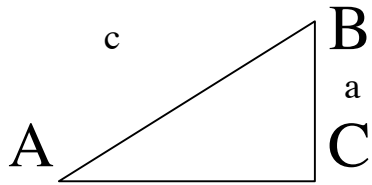


## §9.1 Applications Involving Right Triangles

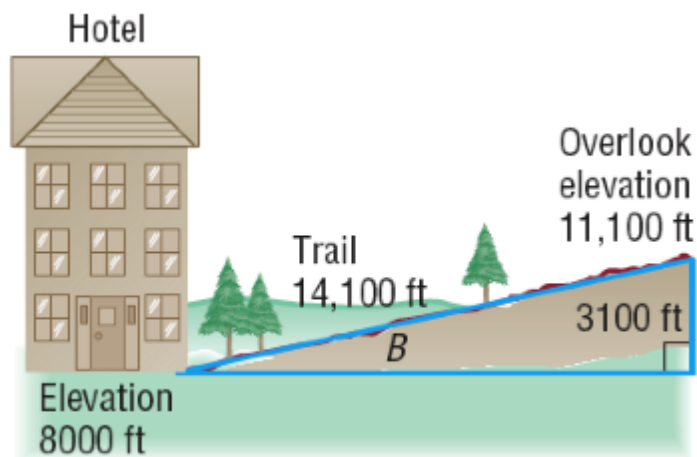
Example 1 Solving a right triangle. Find all angles and sides of the following right triangle.



$$34.2^\circ \quad b = 19.4$$

Example 2 A safety regulation states that the maximum angle of elevation for a rescue ladder is  $72^\circ$ . 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?



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