Applications of Quadratic Functions

A

A delivery truck travels south from Hartselle, Alabama, to Birmingham, Alabama, along Interstate 65. The truck then heads east to Atlanta, Georgia, along Interstate 20. The distance from Birmingham to Atlanta is 8 mi less than twice the distance from Hartselle to Birmingham. If the straight-line distance from Hartselle to Atlanta is 165 mi, find the distance from hartselle to Birmingham and the from Birmingham to Atlanta (round answers to the nearest mile).

B

A model rocket is launched straight upward from the side of a 144-ft cliff. The initial velocity is 112 ft/sec. The height of the rocket *h(t)* is given by:

$$h(t) = -16t^2 + 112t + 144$$

where *h(t)* is measured in feet and *t* is the time in seconds. Find the time(s) at which the rocket is 208 ft above the ground.

C

The length of a rectangular room is 5 yards more than the width. If the area is 300 yd^2, find the length and the width of a room.