

p.361 #58

An athlete whose event is the shot put releases the shot with the same initial velocity but at different angles. The figure shows the parabolic paths for shots released at angles of 35° and 65° . Exercises 57–58 are based on the functions that model the parabolic paths.

58. When the shot whose path is shown by the red graph on the previous page is released at an angle of 65° , its height, $g(x)$, in feet, can be modeled by

$$g(x) = -0.04x^2 + 2.1x + 6.1,$$

where x is the shot's horizontal distance, in feet, from its point of release. Use this model to solve parts (a) through (c) and verify your answers using the red graph.

- What is the maximum height, to the nearest tenth of a foot, of the shot and how far from its point of release does this occur?
- What is the shot's maximum horizontal distance, to the nearest tenth of a foot, or the distance of the throw?
- From what height was the shot released?

