

LESSON
9.9

Real-Life Application: When Will I Ever Use This?

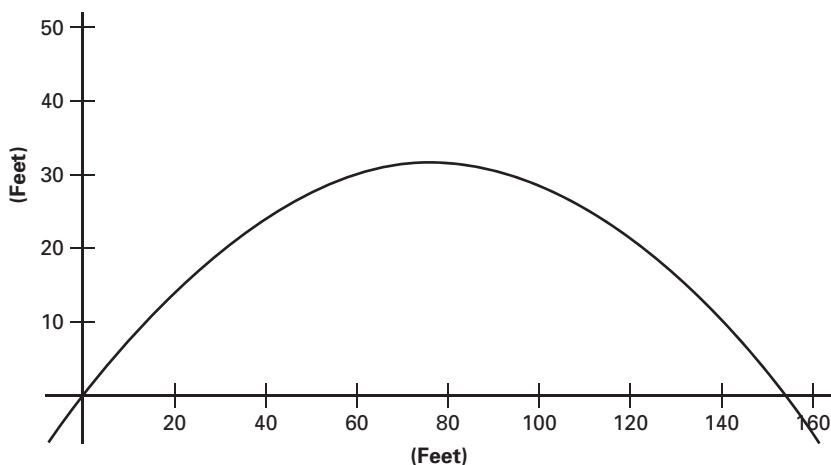
Football

In the game of American football, if the offense cannot score a touchdown, it can attempt a field goal. Field goals are worth three points and can be the difference between a win and a loss. Though they can be attempted from anywhere on the field on any down, they are generally kicked from inside the defense's 45-yard line on fourth down. The placekicker must kick the ball through the goal-post uprights and over the crossbar to be successful.

A placekicker needs to be able to kick far and high to be valuable to a team. Distance, height, and accuracy are crucial. The NFL record for the longest successful field goal is 63 yards held by Tom Dempsey on November 8, 1970 and Jason Elam on October 25, 1998. Morten Anderson holds the record for the most field goals attempted in a career (709) and the record for most successful field goals in a career (565). Forty of his field goals were over 50 yards—three of them in one game!

Use the following information to answer Exercises 1–3.

A team is trying to decide which kicker to place on their team. The height of Placekicker A's field goals can be modeled by $y = -.00595x^2 + x$. The height of Placekicker B's field goals can be modeled by this graph.



- Which placekicker has a higher maximum height?
- What do the intercepts represent in this situation's context?
- Assuming the field goal post is 10 ft high, what is the longest successful field goal each placekicker can kick (in yards)?