CHAPTER 4 TASK

Fore!

For her job as a video game designer, Mei has been recording and analyzing the drives of famous golfers. She models the path of the ball using a quadratic equation that will be included in the game's program.

1. A sports reporter claims that a certain golfer's drive travelled 325 yd. Mei estimates that the maximum height reached by the golf ball is 65 ft.

a) Determine the coordinates of three points that would lie on the quadratic relation that models the flight of this golf ball.

b) With or without graphing technology, graph the three points from part a).

c) Sketch a curve of best fit on paper or determine a curve of best fit using trial and error on a graphing calculator.

d) Write an equation for the curve in the form $y = a(x - h)^2 + k$.

2. Mei modelled another golf shot with the equation $y = -0.1(x - 15)^2 + 22.5$. In this equation, x is the horizontal distance that the ball has travelled and y is its height above the ground. Both are measured in feet.

a) Determine the maximum height of the golf ball.

b) Determine the horizontal distance that the ball travelled, rounded to the nearest foot.

c) Calculate the value of y when $x = 0$. Offer an explanation for this value.

d) On graph paper, sketch and label a graph that models the flight of this golf shot.