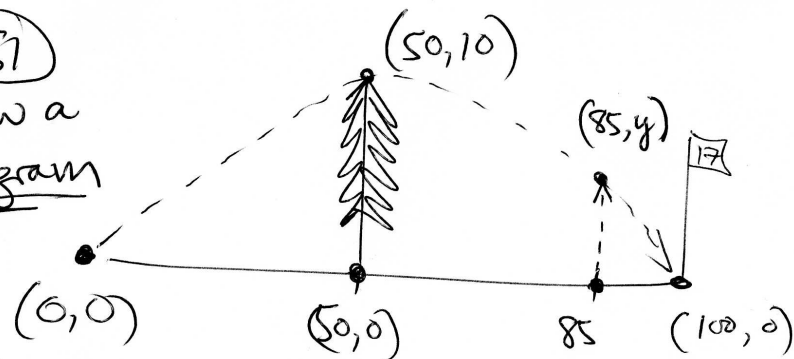


pg 283 #14 (3.4) applications

(S1)
Draw a diagram



(S2)
 Sub in
 zeros

$$y = a(x - 0)(x - 100)$$

$$y = a(x)(x - 100)$$

$x = \text{distance (m)}$
 $y = \text{height (m)}$

(S3)
 Sub in
 (50,10)
 to solve
 for "a"

$$10 = a(50)(50 - 100)$$

$$10 = a(50)(-50)$$

$$10 = -2500a$$

$$a = \frac{10}{-2500}$$

$$a = -\frac{1}{250}$$

(S4)

factored form to standard
form

$$y = -\frac{1}{250} (x^2 - 100x)$$

$$y = \frac{-x^2}{250} + \frac{100x}{\cancel{250}^2}$$

$$y = \frac{-x^2}{250} + \frac{2x}{5}$$

(S5)

Solve for y when $x=85$.

$$y = \frac{-(85)^2}{250} + \frac{2(85)}{5}$$

$$y = \frac{-7225}{250} + \frac{170}{5}$$

$$y = -28.9 + 34$$

$$y = 5.1$$

(S6) Therefore, the height of the ball is 5.1m when it is 15m from the hole.