

p 136 # 77, 78, 79

(77) $y = -\frac{4}{9}x^2 + \frac{24}{9}x + 12$

$$\frac{-b}{2a} = \frac{-\frac{24}{9}}{2(-\frac{4}{9})} = -\frac{24}{9} \cdot -\frac{9}{8} = 3$$

$$f(3) = -\frac{4}{9}(3)^2 + \frac{24}{9}(3) + 12$$
$$= -4 + 8 + 12 = 16 \text{ ft.}$$

(78) $y = -\frac{16}{2025}x^2 + \frac{9}{5}x + 1.5$

a) 1.5 ft. ($x=0$)

b) $\frac{-b}{2a} = \frac{+\frac{9}{5}}{2(-\frac{16}{2025})} = \frac{9}{5} \cdot \frac{2025}{32} = \frac{3645}{32} \approx 113.9$

c) $0 = -\frac{16}{2025}x^2 + \frac{9}{5}x + 1.5$

$$-\frac{9}{5} \pm \frac{\sqrt{(\frac{9}{5})^2 - 4(-\frac{16}{2025})(1.5)}}{2(-\frac{16}{2025})} = 228.8 \text{ ft}$$

Calc 228.64 ft

$$(79) \quad C = 800 - 10X + 0.25X^2$$

$$\frac{-b}{2a} = \frac{10}{2(0.25)} = 20 \text{ units}$$

$$\begin{aligned} f(20) &= 800 - 10(20) + 0.25(20)^2 \\ &= 800 - 200 + 100 = 700 \end{aligned}$$