Section 4.3

3. A grapefruit is tossed straight up with an initial velocity of 50 ft/sec. The grapefruit is 5 feet above ground when it is released. Its height at time $t$ is given by

$$y = -16t^2 + 50t + 5.$$

How high does it go before returning to the ground?

Section 4.4

2. Figure 4.49 shows cost and revenue. For what production levels is the profit function positive? Negative? Estimate the production at which profit is maximized.

![Figure 4.49](image-url)
16. Revenue is given by $R(q) = 450q$ and cost is given by $C(q) = 10,000 + 3q^2$. At what quantity is profit maximized? What is the total profit at this production level?