Name: _____

Calculators are not allowed!

Suppose that the total revenue for selling x units of a product is $R(x) = 32x$ and that the total cost is $C(x) = 200 + 2x + x^2$.

(a) Find the profit function.

(b) Find the marginal profit function $\overline{MP}$.

(c) Find $\overline{MP}$ at $x = 20$.

(d) Suppose that your firm is contractually obligated to produce at least 20 units. To maximize profits, how many units would you (as president of the company) recommend producing? (You must explain your reasoning in order to get full credit.)

Solutions to Quiz 7

(a) $P(x) = R(x) - C(x) = 32x - (200 + 2x + x^2) = 30x - 200 - x^2$.

(b) $\overline{MP}(x) = P'(x) = 30 - 2x$.

(c) $\overline{MP}(30) = -10$.

(d) Since the marginal profit is negative for all $x > 20$, in order to maximaize profits (subject to the constraint htat $x \geq 20$, 20 units should be produced.