

MA160 Dr. Katiraie Worksheet for Section 3.2

- 1) Write an equation for a cost function where the fixed costs are \$2200 and the variable costs are \$10 per unit.

$$C(x) =$$

- 2) Suppose that the cost, in dollars, for a company to produce x pairs of a new line of jeans is $C(x) = 2100 + 4x + 0.03x^2 + 0.0001x^3$.

- (a) Find the marginal cost function.

- (b) Find $C'(100)$.

What does the $C'(100)$ predict?

- A) The exact cost of the 101st pair of jeans
- B) The exact cost of the 100th pair of jeans.
- C) The exact cost of the 99th pair of jeans.
- D) The approximate cost of the 101st pair of jeans.
- E) The approximate cost of the 100th pair of jeans.

- 3) A manufacturer of power supplies estimates that it will incur a total cost of $C(q) = 2600 + 3q + 0.003q^2$ dollars when producing q power supplies, and it will collect $R(q) = 16q - 0.005q^2$ dollars in revenue.

- (a) Write a function for the profit P the manufacturer can expect after producing q power supplies.

$$P(q) =$$

- (b) Find the marginal cost function.

- c) Find the marginal revenue function.

- d) How many power supplies should the manufacturer produce in order to maximize profit?

