Calculus 12
7-4 Questions

1. A company determines that the cost, in dollars, of producing x items is $C(x) = 55000 + 23x + 0.012x^2$.

a) Find the marginal cost function.
b) Find the marginal cost at a production level of 100 items.
c) Find the cost of producing the 101st item.

2. The cost in dollars for the production of x units of a commodity is $C(x) = 1500 + \frac{x}{10} + \frac{x^2}{1000}$.

a) Find the marginal cost function.
b) Find the marginal cost at a production level of 800 units.

3. A manufacturer determines that the revenue derived from selling x units of one of their products is $R(x) = 8000x - 0.02x^3$.

a) Find the marginal revenue function.
b) Find the marginal revenue when 300 units are sold.
c) Compare this to the actual gain in revenue when the 301st unit is sold.

4. The Manchester Pen Company estimates that the cost of manufacturing x pens is $C(x) = 23000 + 0.24x + 0.0001x^2$ and the revenue is $R(x) = 0.98x - 0.0002x^2$.

a) Find the profit function.
b) Find the marginal profit function.
c) Find the marginal profit when 1000 pens are sold.
d) Compare this to the actual increase when the 1001st pen is sold.