

Name: _____

Date: _____

ACTIVITY 2: A Costly Exploration...or not!

An analyst determined that a company's cost function for producing one of its products is given by $C(x) = 0.000003x^3 - 0.04x^2 + 200x + 70,000$.

- 1) Find $C(4000)$ and $C(4001)$ to determine Cost of the 4001st item.
- 2) Use similar processes to find the cost of the 8001st item produced.
- 3) Describe how the company would determine the amount of production that results in the lowest marginal costs. Why might it be inefficient to do it this way?
- 4) Describe how the cost of $(x + 1)$ can be calculated. What does this function remind you of in calculus?
- 5) How can we use calculus to find the marginal cost function?
- 6) Find the marginal cost function of $C(x)$. [recall: Power rule $\frac{d}{dx} x^n = nx^{(n-1)}$]
- 7) Verify the marginal cost of 4001st and 8001st item using your marginal cost function.
- 8) How can we use the function above to find the item that will incur the lowest marginal cost?