SHEET #241: NAME: _____ Period: _____

EXPANDED FROM CSV 2.4 p. 92 Question 19.

Advertising Expenditures versus Revenue Increase

A company's revenue is a function of advertising expenditures, $R = f(a)$, where R is revenue and a is advertising (each in thousands of dollars).

In each case provide a representative sketch, and answer the question in plain English (be careful to keep units in mind when considering the derivative).

a) What does the company hope is true about $f'(a)$? Why? Explain.

b) What does the statement $f'(100) = 2$ mean in practical terms? Is this good for the company?

c) What does $f'(100) = .5$ mean? Is this good for the company?

d) Suppose the company budgets approximately \$100,000 for advertising. If $f'(100) = 2$, should they spend more than \$100, 000? What if $f'(100) = .5$?

e) Draw possible graphs of Profit versus advertising expenditures, $P(a) = R - a = f(a) - a$. [Profit depends on many other costs, but this definition will work for changes in profit due to advertising.] Graph for $f'(100) = 0$, 0.5, 1 and 2.