Math 203 Fall 2018 Professor MG
Classwork 6 Name: _____

Show all work and circle/box your final answer. All answers must be simplified unless stated otherwise.

1. (*0 points*) Find the derivatives of the following functions:

(a) $\dfrac{4x+12}{2x^3+1}$

(b) $f(x) = \dfrac{(2x+3)}{(4x+5)^7}$

(c) $f(x) = \dfrac{4x-2}{2x^2}$

(d) $f(x) = (x^2+1)\left(x+5+\dfrac{1}{x}\right)$

(e) $y = \dfrac{2x+5}{2x-2}$

(f) $y = \dfrac{5x+1}{2\sqrt{x}}$

(g) $y = (x-1)(x^2+x+1)$

(h) $((4x+1)^2+1)^4$

2. (*0 points*) A company that manufactures sport supplements calculates that its costs and revenue can be modeled by the equations:

$$C(x) = 125,000 + \frac{3}{4}x \text{ and } R(x) = 250x - \frac{1}{10}x^2$$

where x is the number of units of sport supplements produced in one week. When production is at 1000 supplements, it is increasing at a rate of 150 supplements per week. Find the (time) rates of change at which the cost, revenue, and profit are changing.