

Quiz 2A, Calculus I - No calculators

Dr. Graham-Squire, Fall 2017

Name: _____

1. (3 points) Prove the derivative rule that $\frac{d}{dx}(c \cdot g(x)) = c \cdot g'(x)$, where c is any constant, by one of the following methods:

- Using the definition of the derivative $\left(f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}\right)$, or
- Using the product rule and the rule for the derivative of a constant.

2. (4 points) Calculate the derivative of $h(x)$. You do not need to simplify.

$$h(x) = \frac{(\tan x)e^x}{7x^5 - \pi x + 17}$$

3. (3 points) Calculate the derivative of $m(x)$, and simplify your answer (hint: it may help to simplify *before* you take the derivative).

$$m(x) = \frac{2x^6 - 3x^5 + x^4}{x^5}$$