

Name:

Math 10a
September 18, 2014
Quiz #2

1. Below are the graphs of three functions and their derivatives, but they are all scrambled up. Identify each of the pairs of function/its derivative (and say which is the function and which is the derivative).

2. Compute the derivatives of the following functions:

(a) $f(x) = x^2 \cos(x)$

(b) $f(x) = \ln(x + \sqrt{1 - x^2})$

(c) $f(x) = \frac{1 - x}{1 + x}$.

3. Use the limit definition of the derivative (i.e., $\lim_{h \rightarrow 0} \frac{f(x+h)-f(x)}{h}$) to compute the following derivatives:

(a) $f(x) = x^3$

(b) $f(x) = \frac{1}{x}$.

4. The equation of an ellipse centered at the origin is given by

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

where a and b are constants. In terms of x and y , write down the slope of the tangent line to a point (x, y) on the ellipse.

5. What is the equation of the line tangent to the graph of $y = x^2$ at the point $(2, 4)$?