UNIVERSITY OF PITTSBURGH

Summer Term 6W2 2019
Business Calculus
QUIZ II 50 Points

Name:_____

Show all your work!! Partial credit will only be given for answers which are partially correct!. Be sure to include all necessary symbols. Your grade is based on the work you show and the arguments you make. **No graphing calculators. No cellphones or any other electronic device during the evaluation**.

1. (8 Pts) Match the graphs of the following functions with their corresponding derivative functions.

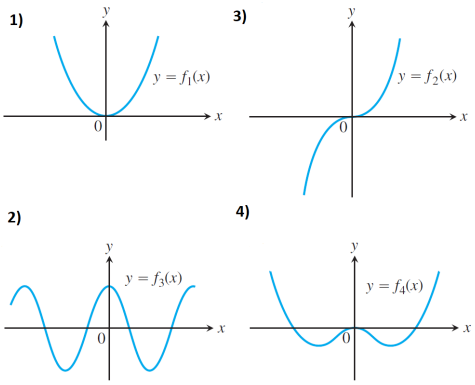

Figure 1: Functions

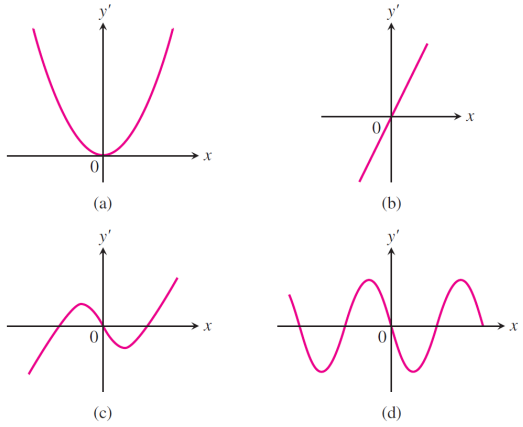

Figure 2: Derivatives

2. (7 Pts) Using the definition of derivative, find the derivative of the function $f(x) = \sqrt{9 - x}$.

3. (25 Pts) Differentiate the following functions. Don't need to simplify.

(a) $f(x) = \frac{3}{5}\sqrt[3]{x^2} - \frac{7}{x^{3/2}} + 3\pi^4$

(b) $y = \frac{4\sqrt{x}-1}{2\sqrt{x}+1}$

(c) $y = 2\sqrt[5]{-6x^5+9x^2+4x+11}$

(d) $y = \sqrt{3 + 2\sqrt{3x^2 + 2}}$

(e) $y = \left(7x^3 + 6x + 2\right)^3 (3x - 1)^2$

4. (10 Pts) For what values of c is the function f continuous on the entire real line. (Make sure you mention and verify all three continuity conditions)

$$g(x) = \begin{cases} cx^2 + 2x & x < 2 \\ x^3 - cx & x \geq 2 \end{cases}$$

Optional

5. (10 Pts) $\lim_{x \to 4/3} \dfrac{|\, 2x - 5 \,| + 3 - 4x}{|\, 4 - 3x \,|}$