UNIVERSITY OF PITTSBURGH

Summer Term 6W2 2019
Business Calculus
QUIZ IV   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. (a) (5 Pts) Find y' if $x^2 + 2xy - y^2 + x = 2$.

    (b) (5 Pts) Find the equation of the tangent line at the point $(1, 2)$.

2. (25 Pts) Evaluate the following integrals:

(a) $\int \left(4x^{5/4} - 3x^{-1/3} + 2e^{3x} + 1 \right) dx$

(b) $\int_0^1 x \left(\sqrt[3]{x} + \sqrt[4]{x} \right) dx$

(c) $\int 7x^3 \left(2 + 5x^4 \right)^5 dx$

(d) $\displaystyle\int \frac{e^{2x}}{e^{2x}+1}dx$

(e) $\displaystyle\int_1^e \frac{(\ln x)^2}{x}dx$

3. (15 Pts) Find the area of the shaded regions:

(a)

$f(x) = x^2$

$g(x) = 4x - x^2$

(b)

$f(x) = \sqrt{9 - x^2}$