

Name: _____

Math 106

Quiz #8

April 2, 2018

- This is a closed-book quiz. No books, notes, calculators, cell phones, communication devices of any sort, or webpages, or other aids are permitted.

1. [10 points] Find the area enclosed by $y = |x|$ and $y = x^2 - 2$. Sketch the region.

2. [10 points] Find the area enclosed by $y = -x - 1$ and $y = 1 - x^2$. Sketch the region.

3. [35 points]

(a) Compute $f'(x)$ when $f(x) = e^x + \frac{1}{e^x} + x^e + \frac{1}{x^e} + e^e + \frac{1}{e^e} + \frac{x}{e} + \frac{e}{x} + ex + \frac{1}{ex}$.

(b) Consider $f(x) = e^{\sin x}$. Compute $f'(0)$. Simplify.

3. (Continued)

(c) Consider $f(x) = \frac{1}{\tan(e^x + \sqrt{x})} + \frac{1}{e^{\tan \sqrt{x}}}$. Compute $f'(x)$.

(d) Consider $f(x) = x^7 + 7^x$. Compute $f'(x)$.