Quiz #2, 9/6
Math 156 (Calculus I), Fall 2023

Problem 1 is worth 4 points, Problem 2 is worth 2 points, and Problem 3 is worth 4 points, for a total of 10 points. Remember to *show your work* on all problems!

1. Let $f(x) = x^2 - 2x$ and $g(x) = 3x + 1$. Write, in expanded form, the formulas for each of the following functions:

(a) $(f \circ g)(x)$

(b) $(g \circ f)(x)$

(c) $(f \circ f)(x)$

(d) $(g \circ g)(x)$

2. Sketch graphs of each of the following functions:

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

(b) $g(x) = \left(\frac{1}{2}\right)^x$

3. Simplify each of the following expressions as much as possible:

(a) $(e^2)^3$

(b) $e^2 \cdot e^3$

(c) $\ln(e^2)$

(d) $\ln\left(\frac{1}{e}\right)$