

Quiz #2, 9/4  
Math 156 (Calculus I), Fall 2024

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

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

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

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

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

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

2. Sketch graphs of each of the following functions:

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

(b)  $g(x) = (\frac{1}{3})^x$

(c)  $h(x) = \log_3(x)$

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

(a)  $(e^2)^4 + e^2 \cdot e^4$

(b)  $\log_{10}(\frac{10^9}{10^3})$

(c)  $\ln(\frac{1}{e^2})$