MAT 136 (Calculus I), Prof. Jim Swift
Quiz 1, Linear and Exponential Functions

Name: key

The 2 problems have equal weight.

You may use your notes, and work with other people, but you may not use a calculator, etc.

The quiz is worth 5 class points. Missing the quiz gets 0 points, and taking the quiz in class (or with a make-up for an excused absence) gets at least 1 point.

1. A linear function f satisfies $f(5) = 4$ and $f(6) = 7$. Fill in the blanks with numbers.

(a) Write a formula for $f(x)$ using the point-slope form: $f(x) = \underline{3}(x - 5) + \underline{4}$

$m = \frac{7-4}{6-5} = \frac{3}{1} = 3$, use $(x_0, y_0) = (5, 4)$

(b) Write the formula for $f(x)$ using the slope-intercept form: $f(x) = \underline{3}x + \underline{-11}$.

$f(x) = 3(x-5)+4 = 3x - 15 + 4 = 3x - 11$

2. An exponential function g satisfies $g(0) = 3$ and $g(1) = 6$. Find a formula for $g(x)$ in the form $g(x) = a \cdot b^x$.

$g(0) = a \cdot b^0 = a = 3$, $a = 3$, $b = \frac{6}{3} = 2$

$g(1) = a \cdot b^1 = ab = 6$.

$g(x) = 3 \cdot 2^x$