Name: _____

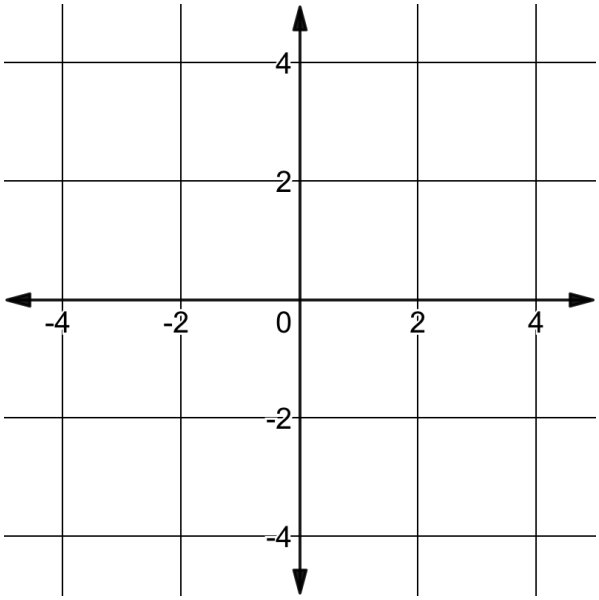
Quiz 3

Math 111

You have 20 minutes to complete **both sides** of this quiz. When you're finished, first check your work if there is time remaining, then turn it in. You may use a scientific calculator, but not a graphing one. **Show all your work.**

1. (8 points) Consider the points $(-4, 2)$, $(-1, -1)$, and $(0, -2)$.

a) Graph these three points.



b) Are these points collinear? Why or why not?

2. (8 points) A ball is dropped from a height of 64 feet above the ground. Its height above the ground after t seconds is given by the function $h(t) = -16t^2 + 64$ for $t \geq 0$.

a) Find the average rate of change of $h(t)$ between $t = 0$ and $t = 1$.

b) Find **and interpret** the horizontal axis intercept of $h(t)$. (Hint: if you find two intercepts, only one should make sense.)

3. (8 points) You're driving on the freeway at 30 miles per hour and decide it's a good idea to speed up, so you accelerate to 60 over the course of 5 seconds. The function $s(t)$ gives your speed t seconds after you begin to speed up, where $0 \leq t \leq 5$. The average rate of change of s is the same (constant) for all points where s is defined.

a) What kind of a function is s? Use the fact that it has constant average rate of change.

b) Write $s(t)$ as a formula with no unknown variables except t.