Homework Topic 13 (Due Thursday 5/19)

1.
   a. Sketch two different functions whose derivative is $y' = 4$. In each case; give the rule for the original function and check the derivative is $y' = 4$.
   b. How many possible functions satisfy this requirement?
   c. Suppose $y(1) = 3$ and $y' = 4$; what is the original function now?
   d. Sketch $y' = 4$ and the function you determined in part c) together.

2.
   a. Sketch two different functions whose derivative is $y' = -4x$. In each case; give the rule for the original function and check the derivative is $y' = -4x$.
   b. How many possible functions satisfy this requirement?
   c. Suppose $y(-1) = 8$ and $y' = -4x$; what is the original function now?
   d. Sketch $y' = -4x$ and the function you determined in part c) together.

3.
   a. Sketch two different functions whose derivative is $y' = 3x^2 + 1$. In each case; give the rule for the original function and check the derivative is $y' = 3x^2 + 1$.
   b. How many possible functions satisfy this requirement?
   c. Suppose $y(0) = 1$ and $y' = 3x^2 + 1$; what is the original function now?
   d. Sketch $y' = 3x^2 + 1$ and the function you determined in part c) together.