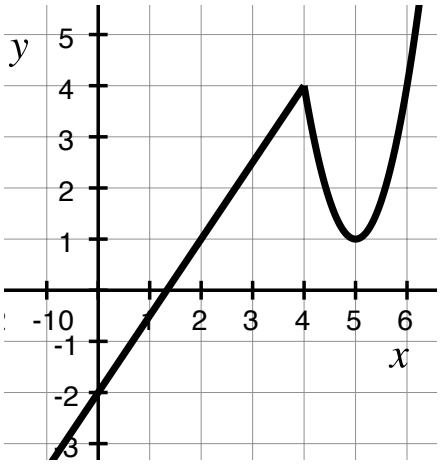
Math 111 Quiz #1
April 5, 2011

Name: _____

Show all work and answers on a separate sheet. Simplify your answers as much as possible. No calculators.

1. The following is a graph of the function $f(x)$.



   (a) (1 pt.) Solve $f(x) = 1$ for x.

   (b) (1 pt.) Give all intervals for which $f(x)$ is decreasing.

   (c) (1 pt.) Evaluate $f(4) - f(0)$.

2. (2 pts.) Find the average rate of change of $g(x) = 4x^2 - 1$ over the interval $-2 \leq x \leq 1$.

3. Suppose the number of squirrels on campus at time 0 (the year 2010) was 700 and that afterwards, it increases by 50 squirrels per year.

   (a) (2 pts.) Find a formula for the population P as a function of t, the number of years after 2010.

   (b) (1 pt.) According to the model, when will there be 1250 squirrels on campus?

4. (2 pts.) Find an equation of a line through $(12, -5)$ with slope $\frac{1}{3}$. Write your final answer in slope-intercept form.