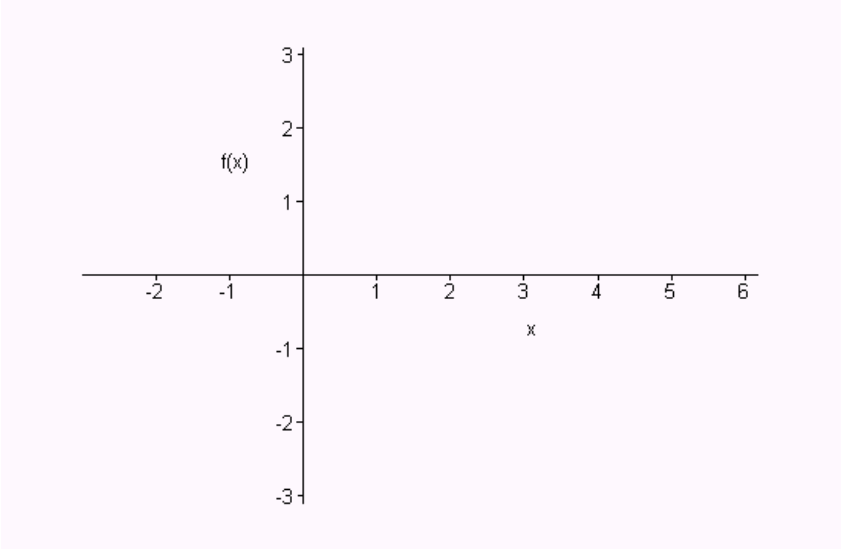
9/2/2005 MATH261 Calculus I Name:_____
Dr. Lunsford Quiz 2 (20 Points Total)

Neatly show ALL of your work and CLEARLY indicate your answers. Use the back of the page if necessary.

I. Use the graph of the function f below to find the indicated function values and limits. (1 point each 8 points total)



$f(0) =$ ___ $f(5) =$ ___

$\lim_{x \to -1} f(x) =$ ___ $\lim_{x \to 2^-} f(x) =$ ___

$\lim_{x \to 2^+} f(x) =$ ___ $\lim_{x \to 2} f(x) =$ ___

$\lim_{x \to 4} f(x) =$ ___ $\lim_{x \to 5} f(x) =$ ___

II. A ball is projected straight up from ground level into the air with a velocity of 40 feet per second (ft/s). Its height, in feet, t seconds later is given by the function $h(t) = 40t - 16t^2$. A graph of this function is given below. Please answer the following questions being sure to neatly show all of your work. (12 points total)

(a) At what time will the ball hit the ground? (2 points)

(b) Find the average velocity of the ball from time $t = 1$ to time $t = 2$ seconds. Draw (and clearly indicate) the line whose slope represents this velocity on the graph. (3 points)

(c) Find and simplify an algebraic expression for the average velocity of the ball from time $t = 2$ to time $t = x$ seconds. (4 points)

(d) Given that the velocity of the particle at time $t = 2$ seconds is $-24\ ft/s$, draw (and clearly indicate) the line whose slope represents this velocity on the graph of h and find the equation of that line. (3 points)