Calculus I; Professor Katiraie Quiz Two Fall 2006

Name:_____ Date:_____

1) A ball is thrown into the air with a velocity of 35 feet per second, its height in feet after t seconds is given by $y = 35t - 16t^2$

   a) Find the average velocity for the time period beginning when t = 1.5 seconds and lasting (4 Pts)

   i) 0.5 s

   j) 0.1 s

   k) 0.05 s

   l) 0.00001 s

   b) Find the instantaneous velocity when t =1.5 seconds (2 Pt)

2) a) Sketch the graph of the following function (4 Pts)

$$f(x) = \begin{cases} (x-2)^2 & \text{if } x < -1 \\ x+2 & \text{if } -1 \le x < 1 \\ (x-2)^2 & \text{if } x \ge 1 \end{cases}$$

b) Use the above graph to determine
the values of "a" for which $\lim_{x \to a} f(x)$ Does Not Exist. (4 Pts)

3) For the following function,

a) Graph the function, (2 Pt)

$$g(x)=\begin{cases} x+5 & \text{if } x<-3 \\ \sqrt{9-x^2} & \text{if } -3\le x\le 3 \\ x & \text{if } x>3 \end{cases}$$

b) And state the value of the given quantity, if it exists. If it does not exist, explain why. (4 Pts)

$a)\ \lim_{x\to -3^-} g(x) =$

$b)\ \lim_{x\to -3^+} g(x) =$

$c)\ \lim_{x\to -3} g(x) =$

$d)\ \lim_{x\to 0^-} g(x) =$

$e)\ \lim_{x\to 2^+} g(x) =$

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