Quiz 4

Name: _____

**Instructions:** Complete the following problems.

1. Let $f(x) = x^2 + 1$.

   (a) (2 pts) The slope of the line tangent to f at $(2, 5)$ is given by a certain limit. Write this limit.

   (b) (2 pts) Evaluate the limit from part (a). (If you do not have an answer for part (a), instead evaluate $\lim_{t \to 0} \dfrac{(3+t)^{-1} - 3^{-1}}{t}$.)

(c) (2 pts) Use your answer from part (b) to find the equation of the line tangent to f at the point $(2, 5)$. (If you did not get an answer in part (b), use the value π instead.)

2. The graph of a function $g(x)$ is shown below.
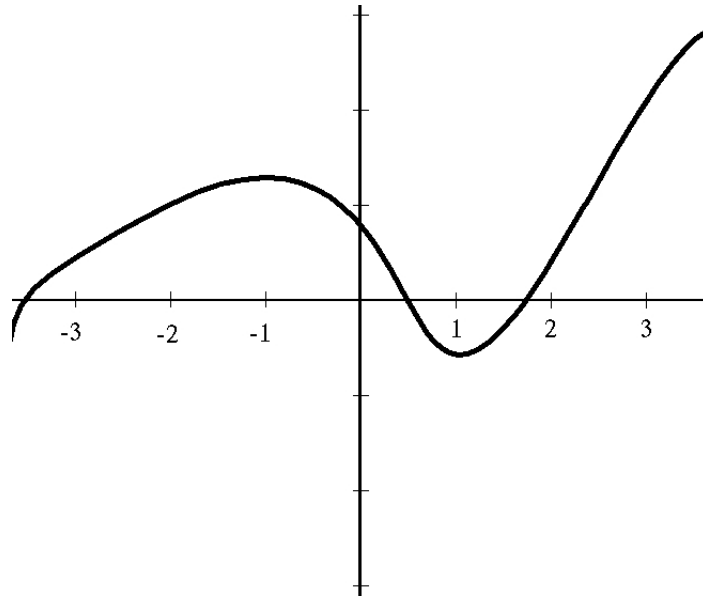
(a) (2 pts) Using the graph of g, find two values of a such that $g'(a) = 0$.

(b) (2 pts) Using the graph of g, put the following numbers in order from least to greatest: $g'(-2)$, $g'(-1)$, $g'(0)$.