

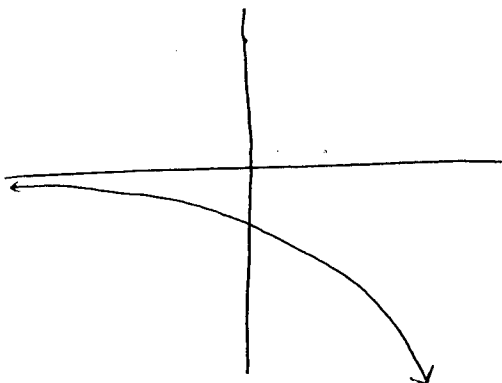
Math 105 Quiz 2

§1.4-§1.7

Name: Key

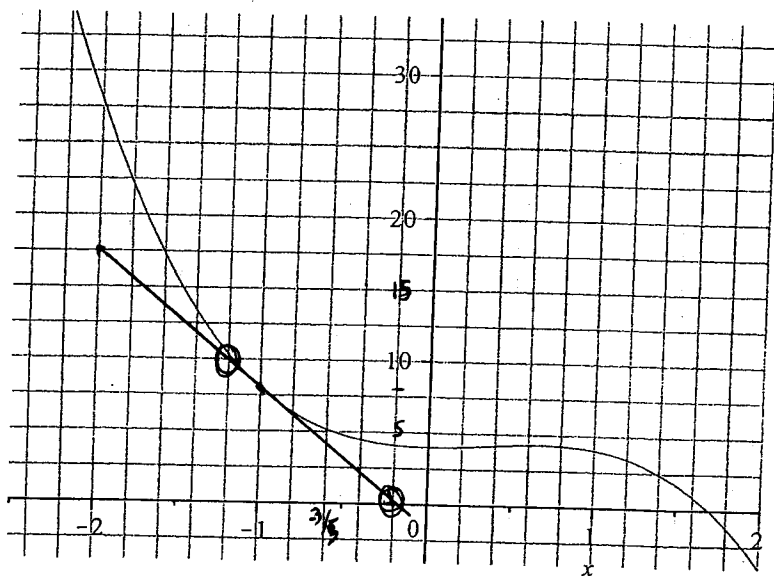
Show all work for credit.

1. Sketch the graph of a function f for which $f(x) < 0$, $f'(x) < 0$, and $f''(x) < 0$ for all x . Describe what these inequalities mean in words.



$f(x) < 0 \rightarrow$ function has negative values
 $f'(x) < 0 \rightarrow$ derivative is negative
 \Rightarrow function is decreasing
 $f''(x) < 0 \rightarrow$ 2nd derivative is negative
 \Rightarrow 1st derivative is decreasing
 \Rightarrow function is concave down

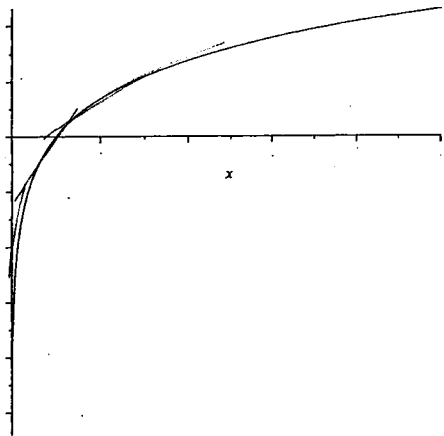
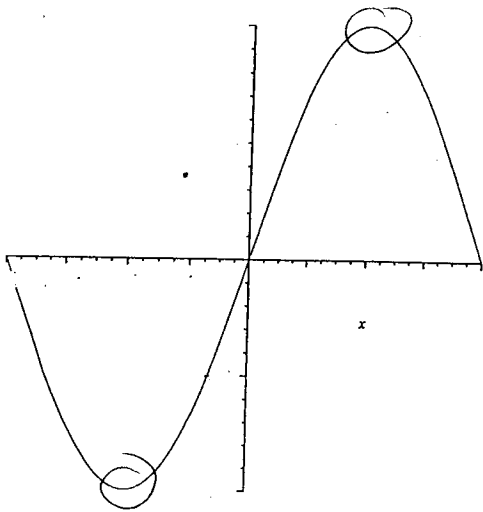
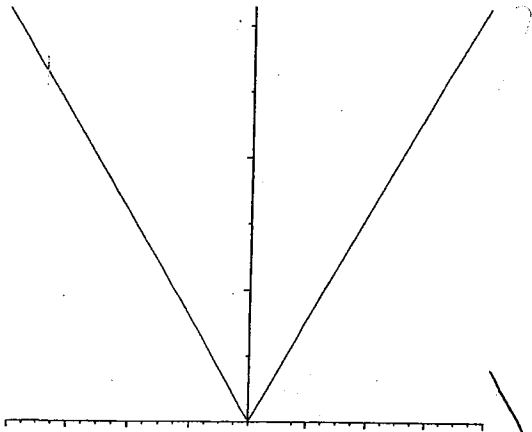
2. Given the following graph of g estimate $g'(-1)$ using the techniques in §1.5. Find the equation of the tangent line through $x = -1$.



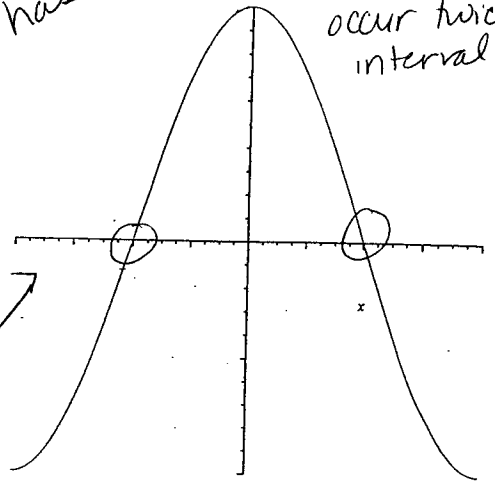
$$g'(-1) \approx \frac{10-0}{-1\frac{1}{5}-0} = \frac{-25}{3}$$

$$y - 8 = \frac{-25}{3}(x + 1)$$

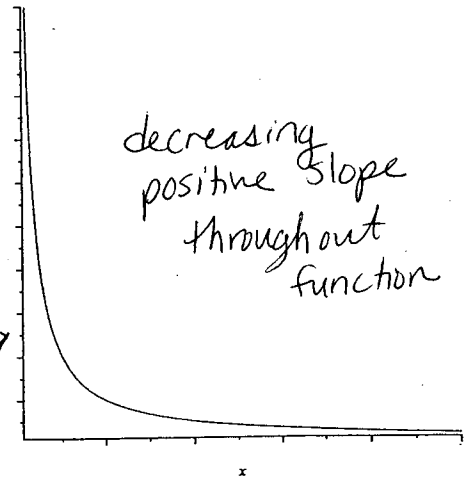
3. Match the graphs on the left to the graphs of their derivatives on the right. Briefly explain.



function has horizontal tangent lines occur twice in interval.



decreasing positive slope throughout function



function has constant slope and undefined at zero.

