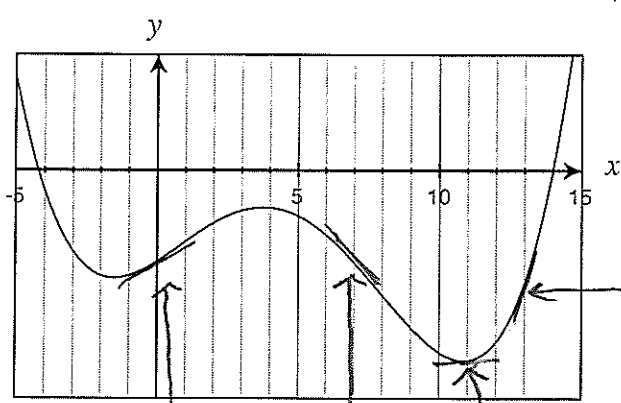


Name: KEY

Math 105: Fall 2012
 Quiz 1: September 18

Please write your final answer in the space provided. Correct answers accompanied by incorrect or incomplete work will not receive full credit. Good Luck!

1. The graph below is a graph of $y = f(x)$. Rank $f'(0)$, $f'(7)$, $f'(11)$, $f'(13)$ in increasing order.



(1) $f'(7), f'(11), f'(0), f'(13)$

2. Consider the function $g(x) = \frac{1}{1 - \sqrt{x}}$.

(a) What is the domain of $g(x)$? (2a) $[0, 1) \cup (1, \infty)$
 {can't divide by 0 (so $1 - \sqrt{x} \neq 0 \Rightarrow \sqrt{x} \neq 1 \Rightarrow x \neq 1$)
 {can't take sq rt of neg # (so $x \geq 0$)
 → put together ANS: $[0, 1) \cup (1, \infty)$

(b) Is 1 is the range of $g(x)$? Explain your answer. (2b) Yes
 B/c if $x=0$ then
 $g(0) = \frac{1}{1-0} = 1$, so
 1 is a possible output.

3. Let $h(x) = \log_b x$ where $b > 1$.

(a) What is the domain of $h(x)$?

(3a) $\{x \mid x > 0\}$

(b) What is the range of $h(x)$?

(3b) all real #s

(c) What are the root(s) of $h(x)$?

(3c) $x = 1$

b/c $h(1) = 0$

(d) Is the graph of $h(x)$ concave up or concave down?

(3d) concave down

graph is

