

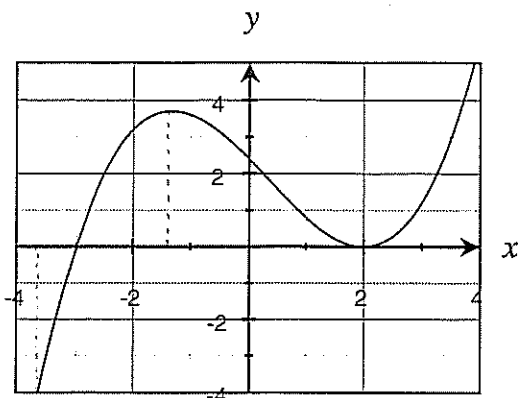
Name: Solutions

Math 105B: Winter 2013

Quiz 2: January 25

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

1. The graph below is a graph of $y = g'(x)$, the derivative of g . Use the graph to answer the following questions. You will probably have to estimate some answers.



- (a) On what interval(s) is g' decreasing? Justify your answer.

because that is when the value of g' is getting smaller as we look at the graph from left to right
 (1a) $(-1.3, 2)$

- (b) On what interval(s) is g concave up? Justify your answer.

g is concave up when g' is increasing.
 (1b) $(-3.7, -1.3) \cup (2, 3.9)$

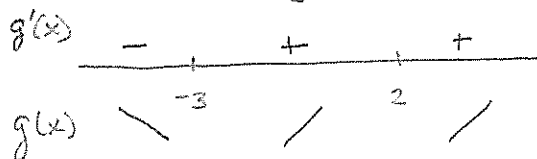
- (c) For what x -value(s) does g have a stationary point? Justify your answer.

b/c that is when $g'(x) = 0$.
 (1c) $x = -3, 2$

- (d) For what x -value(s) does g have a local extremum? Justify your answer.

a local extrema occurs at stationary points.
 (1d) $x = -3$

Now using the first derivative test



so we see that $x = -3$ is a minimum and $x = 2$ is neither a min nor a max
 OVER

2. Suppose that $f(1) = 8$ and $f'(x) \leq 7$ for all x . What is the smallest that $f(-2)$ could be?

$$[-2, 1]$$

$$(2) \underline{\quad -13 \quad}$$

$$f(1) - f(-2) \leq 7(1 - (-2)) \quad \text{This is the speed limit law}$$

$$8 - f(-2) \leq 21$$

$$-13 \leq f(-2)$$