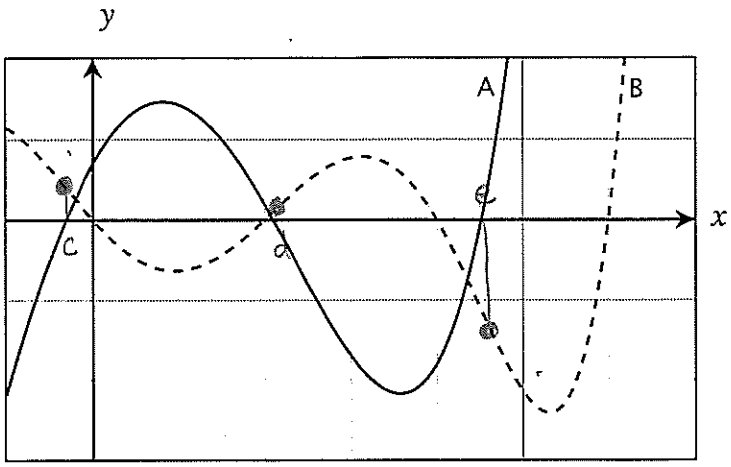
Name: Solutions

Math 105B: Winter 2013
Quiz 3: February 1

Correct answers accompanied by incorrect or incomplete work will not receive full credit. **Justify all answers.** Good Luck!

1. The graphs of f and f'' are shown below. Which is which? Explain your choices.

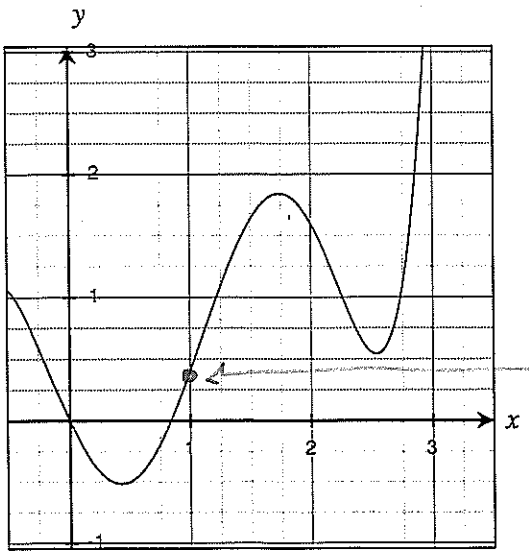


If a function is concave up its second derivative is positive.

B is f
A is f''

B is CC↑ on (c,d), (e,∞)
A is pos on (c,d), (e,∞)

2. g is a function such that g' is the function shown below. Evaluate $\lim_{h\to 0}\frac{g(1+h)-g(1)}{h}$. Explain your answer.



$\lim_{h\to 0}\frac{g(1+h)-g(1)}{h}$ = $g'(1)$

So I need to find the y-value of the point $(1, g'(1))$

$g'(1) \approx .4$

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3. Let $f(x) = \sqrt{\ln x}$. Find a reasonably good numerical estimate for $f'(7)$. Round your answer to three places after the decimal point. (You may NOT use any derivative formulas that you may have learned in a previous calculus class.)

$$f'(7) \approx \frac{f(7.01) - f(7)}{7.01 - 7} = \frac{\sqrt{\ln(7.01)} - \sqrt{\ln 7}}{.01}$$

$$\approx \boxed{.051}$$