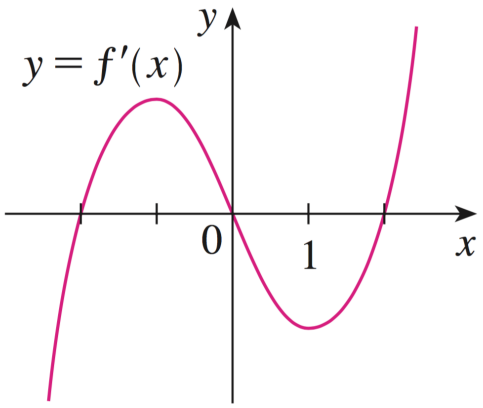
Name: _____

Math 1300-005 - Spring 2017

Section 2.8 Activity - 2/13/17

Guidelines: Guidelines: Please work in your groups of two or three. As you finish problems, raise your hand and call me over to check your work. This will not be handed in and is a study resource for the next midterm.

1. The graph of the *derivative* f' of a function f is given.

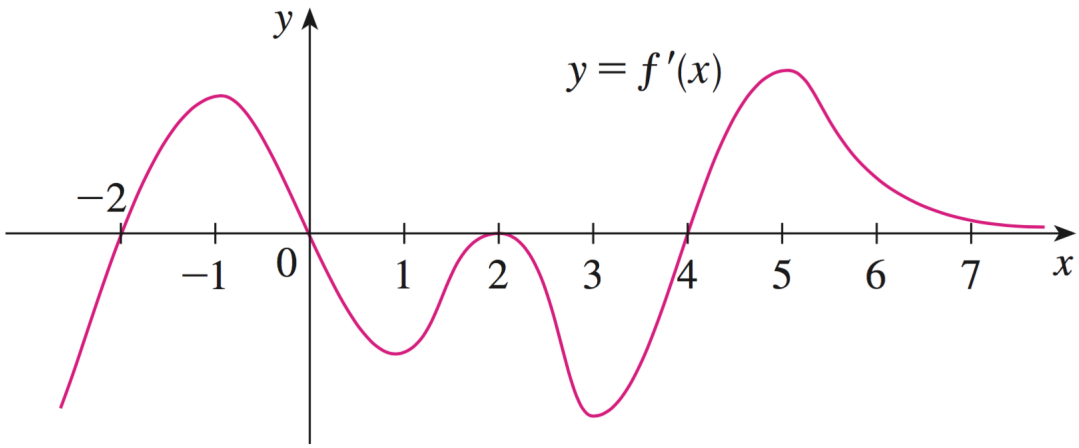


   (a) Draw and label a sign chart for f'. On what intervals is f increasing? Decreasing? Justify your answers in either case.

   (b) At what values of x does f have a local maximum or minimum? Justify your answer.

   (c) Draw and label a sign chart for f''. Where is f concave upward or downward? Justify your answer. State the x-coordinates of any inflection points of f.

2. The graph of the *derivative* f' of a function f is given.



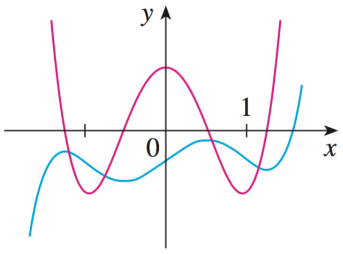
(a) Draw and label a sign chart for f'. On what intervals is f increasing? Decreasing? Justify your answers in either case.

(b) At what values of x does f have a local maximum or minimum? Justify your answer.

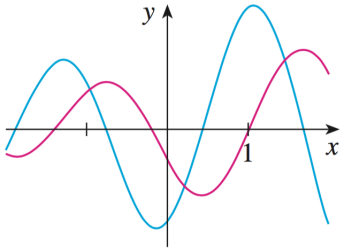
(c) Draw and label a sign chart for f''. Where is f concave upward or downward? Justify your answer. State the x-coordinates of any inflection points of f.

3. In each figure, the graph of a function f and its derivative f' are shown. Which is bigger, $f'(-1)$ or $f''(1)$?

(a)

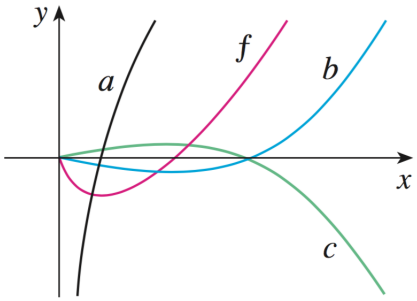


(b)

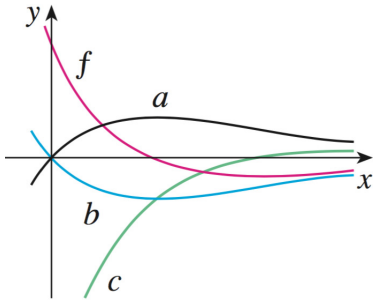


4. In each figure, the graph of a function f is shown. Which graph is an antiderivative of f and why?

(a)



(b)



5. Sketch the graph of a function that satisfies all of the given conditions.

(a) $f'(0) = f'(4) = 0$,

(b) $f'(x) > 0$ if $x < 0$,

(c) $f'(x) < 0$ if $0 < x < 4$ or if $x > 4$,

(d) $f''(x) > 0$ if $2 < x < 4$,

(e) $f''(x) < 0$ if $x < 2$ or $x > 4$.