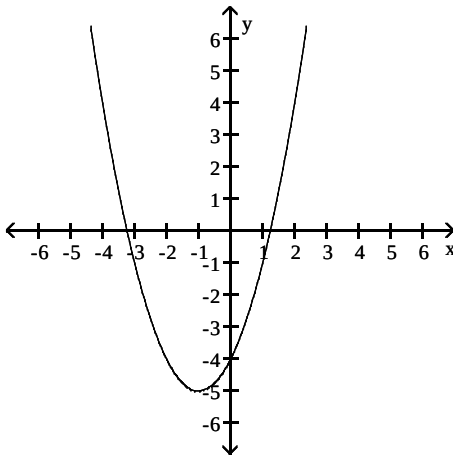
MATH 150/GRACEY Name_____
TAKE-HOME QUIZ/3.1-3.6
DUE 3/26/15 AT 1:15PM

Solve the problem.

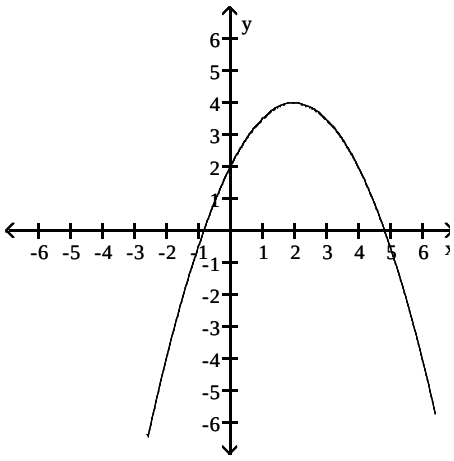
1) Find the graph that matches the given table.

x	f′(x)
-1	0
1	does not exist
3	0

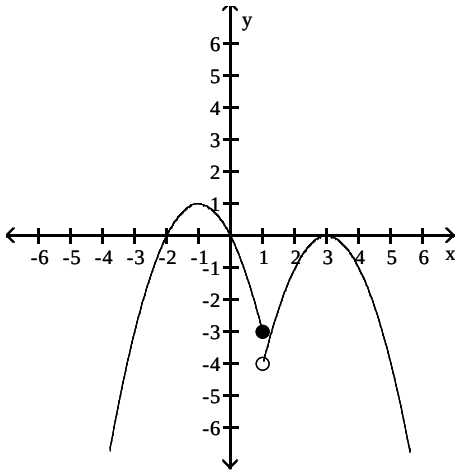
A)



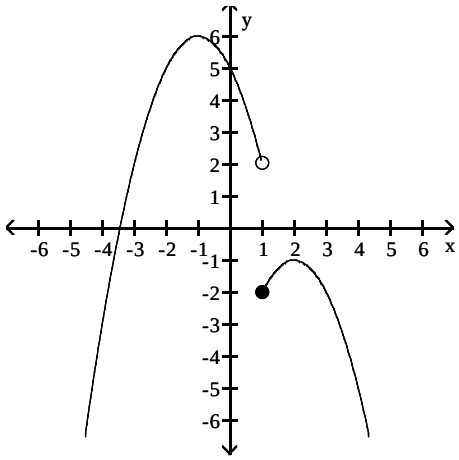
B)



C)

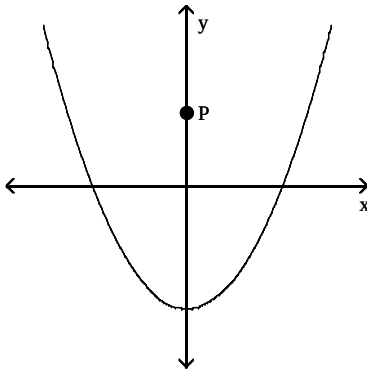


D)

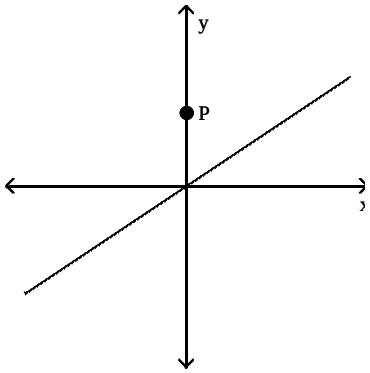


2) The graphs below show the first and second derivatives of a function y = f(x). Select a possible graph of f that passes through the point P.

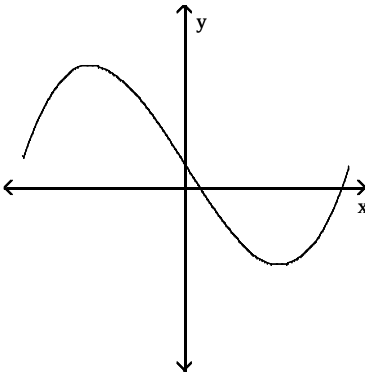
f′



f″

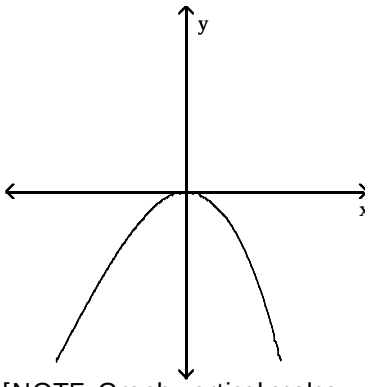


A)



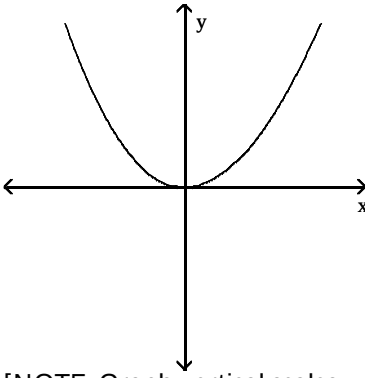
[NOTE: Graph vertical scales may vary from graph to graph.]

B)



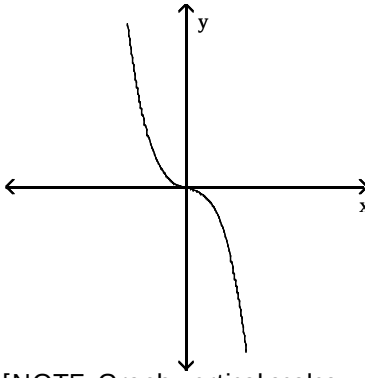
[NOTE: Graph vertical scales may vary from graph to graph.]

C)



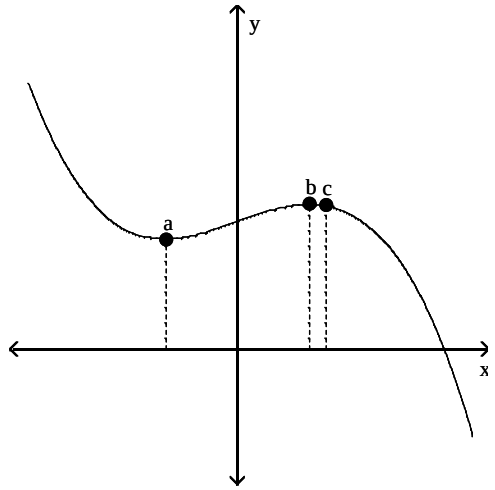
[NOTE: Graph vertical scales may vary from graph to graph.]

D)



[NOTE: Graph vertical scales may vary from graph to graph.]

3) Find the table that matches the graph below.



A)

x	f′(x)
a	0
b	0
c	$\frac{5}{2}$

B)

x	f′(x)
a	does not exist
b	does not exist
c	$\frac{5}{2}$

C)

x	f′(x)
a	0
b	0
c	$-\frac{1}{2}$

D)

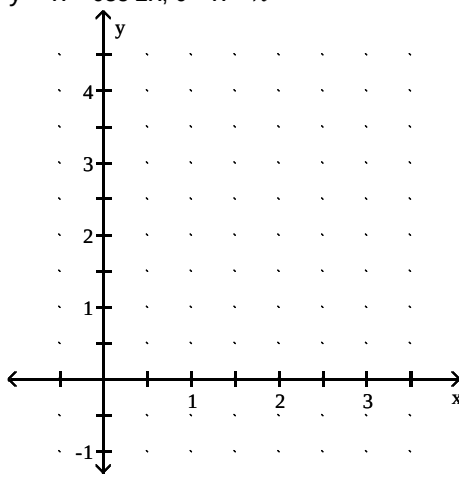
x	f′(x)
a	does not exist
b	0
c	$-\frac{1}{2}$

Determine all critical points for the function. (NO GRAPHING CALCULATOR)

4) $f(x) = \frac{4x}{x+2}$

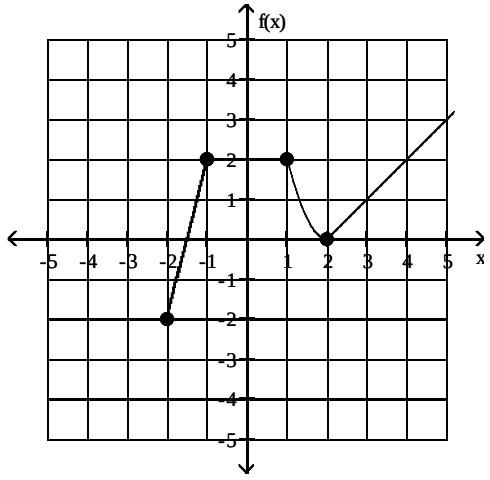
Use calculus to graph the equation. Show all work. Include the coordinates of any local and absolute extreme points and inflection points. (NO GRAPHING CALCULATOR)

5) $y = x + \cos 2x,\ 0 \le x \le \pi$



Find the location of the indicated absolute extremum for the function.

6) Minimum

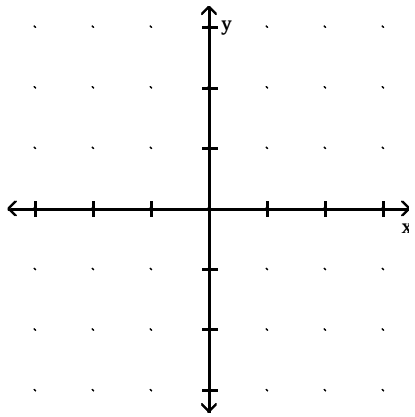


Find the value or values of c that satisfy the equation $\frac{f(b) - f(a)}{b - a} = f'(c)$ in the conclusion of the Mean Value Theorem for the function and interval. (NO GRAPHING CALCULATOR)

7) $f(x) = x + \frac{18}{x}$, $[2, 9]$

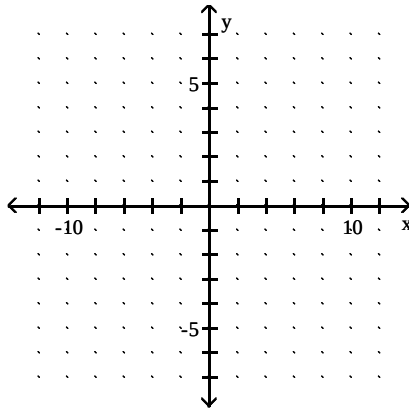
Use calculus to graph the equation. Show all work. Include the coordinates of any local and absolute extreme points and inflection points. (NO GRAPHING CALCULATOR)

8) $y = \frac{x^2}{x^2 + 7}$



Use calculus to graph the rational function. Show all work. (NO GRAPHING CALCULATOR)

9) $y = \frac{x}{x^2 - 36}$

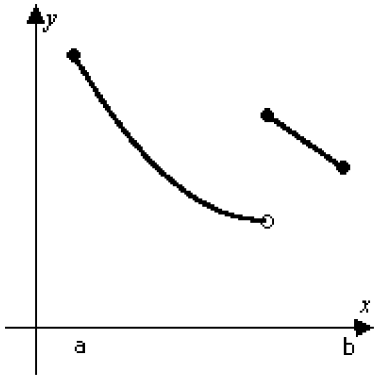


Find the extrema of the function on the given interval, and say where they occur. (NO GRAPHING CALCULATOR)

10) $\sin 4x,\ 0 \le x \le \frac{\pi}{2}$

Determine from the graph whether the function has any absolute extreme values on the interval [a, b].

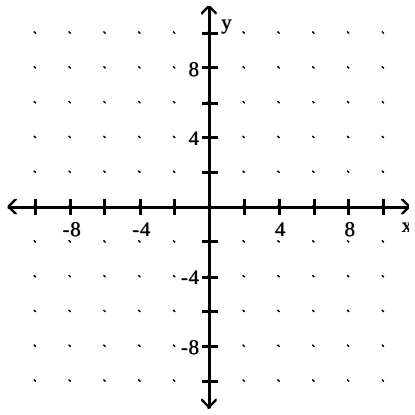
11)



A) Absolute minimum only.
B) No absolute extrema.
C) Absolute maximum only.
D) Absolute minimum and absolute maximum.

Use calculus to graph the rational function. Show all work. (NO GRAPHING CALCULATOR)

12) $y = \dfrac{x + 3}{x^2 + 7x + 12}$



Find the absolute extreme values of the function on the interval.

13) $f(x) = |x - 2|,\ 1 \le x \le 5$