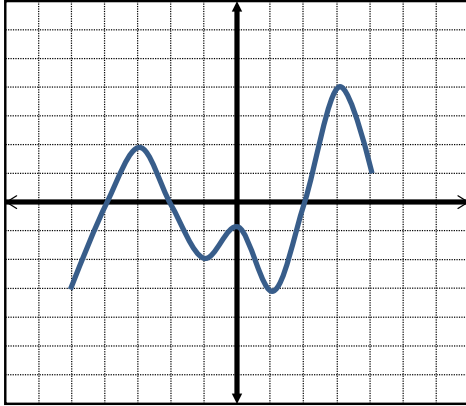


HW61: Unit 8 Test Review

1) Giving the graph of the derivative of the function $f(x)$ below.



a) Sketch the graph of $f(x)$ on the same graph as the derivative.

b) For what values of x is $f(x)$ decreasing? _____

c) For what values of x does $f(x)$ have a relative min.? _____

d) For what values of x is $f(x)$ concave down? _____

e) For what values of $f(x)$ are inflection points? _____

Find the absolute maximum and minimum of:

2) $f(x) = 4 - x^2$ on $[-3, 1]$

3) $y = x^4 - 3x^2 + 4$ on $[-2, 1]$

Find the following from the given derivatives:

4) $y' = x^2 - x - 6$

5) $y' = 2x - 6$

Increasing: _____

Increasing: _____

Decreasing: _____

Decreasing: _____

Critical Values: _____

Critical Values: _____

Concave Up: _____

Concave Up: _____

Concave Down: _____

Concave Down: _____

Inflection Values: _____

Inflection Values: _____

Identify the features of and sketch the graph on the given interval.

6) $f(x) = 2x^3 - 6x + 5$ $-2 \leq x \leq 2$.

Increasing: _____

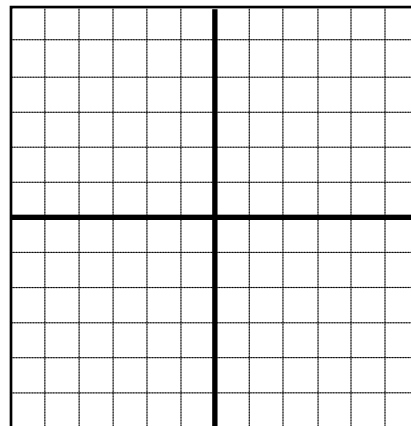
Decreasing: _____

Critical Points: _____

Concave Up: _____

Concave Down: _____

Inflection Points: _____



Find the value of c that satisfies the Mean Value Theorem.

7) $f(x) = x^2 - 5x + 4$ on $[0, 2]$

8) $f(x) = \sqrt{x-1}$ on $[1, 5]$

Find the critical points of the function. Round to the nearest tenth.

9) $f(x) = \frac{x^2 - 5x + 4}{x + 2}$

10) $f(x) = 4x^{1/3} - x^{4/3}$

Find the inflection points of the function.

11) $f(x) = \frac{1}{2}x^4 - 3x^3 + 2$

12) $f(x) = x^4 - 3x^3 + x + 4$

Sketch the graph with the given table.

13)

x	$-4 \leq x < -1$	-1	$-1 < x < 1$	1	$1 < x < 3$	3	$3 < x \leq 5$
$f(x)$	Negative	-2	Negative	-5	Negative	0	Negative
$f'(x)$	Negative	Zero	Negative	Zero	Positive	Undefined	Negative
$f''(x)$	Negative	Zero	Positive	Zero	Positive	Undefined	Positive

