1. Suppose you have the graph of f'(x) to be:

a) Where is f(x) increasing and concave down?

b) Where is f(x) increasing at an increasing rate?
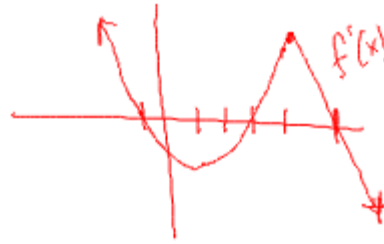
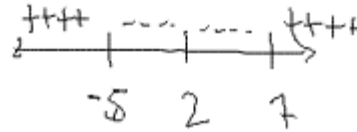2. Given the following table of values for t in seconds and v(t) in meters per second:

t	2	4	6	8	10
v(t)	-3	2	5	7	12

Estimate a(5)

3. Given the following line graph for f'(x)

a) What are the critical points?

b) Where is there a relative maximum/minimum for f(x)? Justify your reasoning.

c) Where is f(x) increasing/decreasing? Justify your reasoning.

4. Given the following equation: $f(x) = x^3 - 6x^2 + 12x$

a) Find all relative extrema.

b) Find all inflection points.

c) Find all values of c that are guaranteed by MVT on [0, 4]

5. Use the table below to sketch a graph of the function f(x).

x	(-∞, -2)	-2	(-2, -1)	-1	(-1, 2)	0	(2, 4)	4	(4, ∞)
f		0		DNE		0		6	
f'	+		+		+		+	DNE	+
f''	+		+		-		+		+

6. Suppose you have 80 linear feet of fencing to enclose a rectangular space for a garden. Find the largest possible area that can be enclosed with this much fencing. What are the dimensions that yield this area?

7. Squares of equal sides are cut of a 20 x 24 rectangle and folded up to form a box with an open top. What are the dimensions of the squares to form the largest possible volume?

8. Find the antiderivative of each of the following:

a) $f'(x) = 2x^3 - 5x^2 - 3x + 2$ 　　　　　　b) $f'(x) = \cos x - 2\sec^2 x$