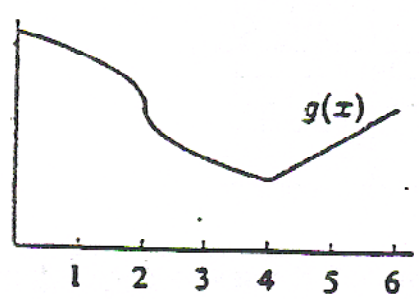
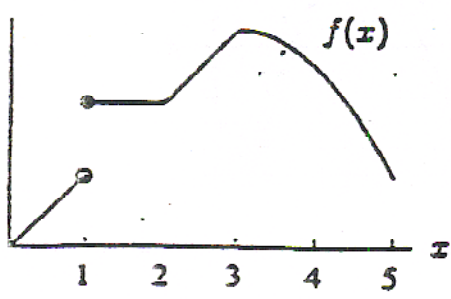


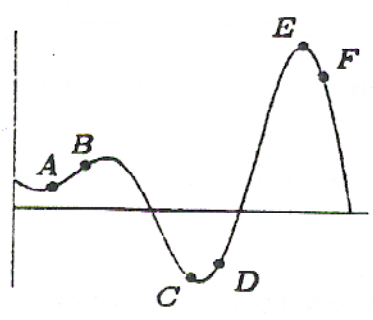
Work problems 6, 7, 8 and 9 on notebook paper.

1. For each of the graphs shown below, list the x -values for which the function appears to be:
 (i) not continuous
 (ii) not differentiable



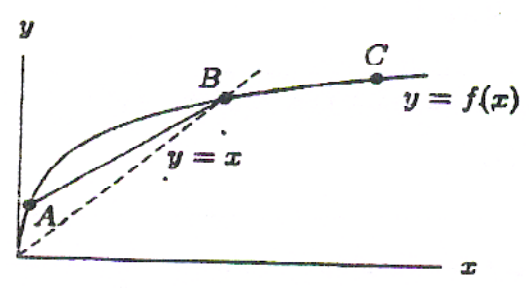
2. Match the points labeled on the curve with the given slopes.

Slope	Point
-3	
-1	
0	
$\frac{1}{2}$	
1	
2	



3. For the graph $y = f(x)$ shown in the figure, arrange the following numbers in ascending order:

- The slope of the graph at A
- The slope of the graph at B
- The slope of the graph at C
- The slope of the line AB
- The number 0
- The number 1

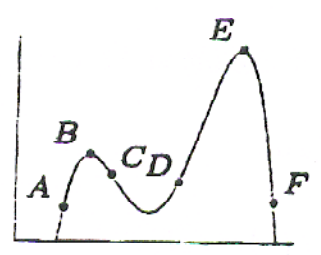


4. For the function shown below, at what labeled points is the slope of the graph:
 positive?

negative?

At which labeled point does the graph have the:
 greatest (i.e., most positive) slope?

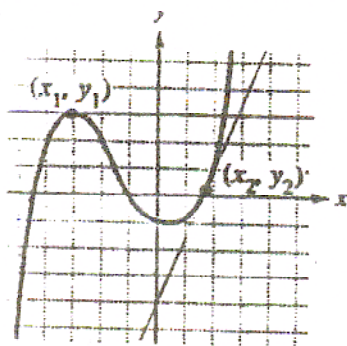
the least slope (i.e., negative and with the largest magnitude)?



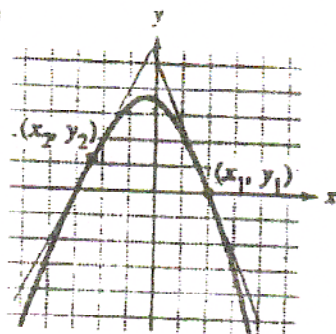
TURN>>>

Estimate the slope of the graph at the points (x_1, y_1) and (x_2, y_2) .

5. (a)



(b)



Work problems 6, 7, 8 and 9 on notebook paper.

6. Given the table of values below:

x	1	1.9	1.97	2	2.02	2.2	3	3.9	3.99	4	4.01	4.1
$f(x)$	2.5	6.6	6.905	7	7.059	7.5	8	8.82	8.98	9	9.2	11

- (a) Estimate the value of $f'(2)$ three different ways. Show your computations. Do you think that f is differentiable at $x = 2$?
- (b) Estimate the value of $f'(4)$ three different ways. Show your computations. Do you think that f is differentiable at $x = 4$?

7. Let f be a function which satisfies the property $f(x+y) = f(x) + f(y) + 2xy$ for all real numbers x and y , and suppose that $\lim_{h \rightarrow 0} \frac{f(h)}{h} = 7$. Use the definition of the derivative to find $f'(x)$.

8. Let f be a function which satisfies $f(1+h) - f(1) = 3h + 4h^2 - 5h^3$ for all real numbers h . Find $f'(1)$.

9. Suppose f is a function for which $\lim_{x \rightarrow 2} \frac{f(x) - f(2)}{x - 2} = 0$. Which of the following questions **MUST** be true, **MIGHT** be true, or can **NEVER** be true? Explain your answers.

- (a) $f(x)$ is continuous at $x = 2$.
- (b) $f(x)$ is continuous at $x = 2$.
- (c) $f(2) = 0$
- (d) $\lim_{x \rightarrow 2} f(x) = f(2)$.
- (e) $f'(2) = 2$