

I. Complete the table by matching each of the following descriptions with an appropriate graph and table of values.

Description	Table	Graph
A		
B		
C		
D		

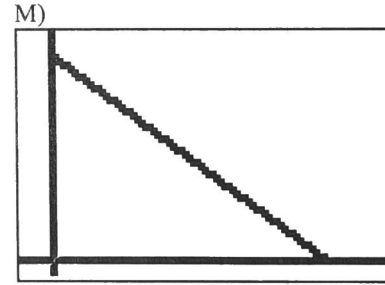
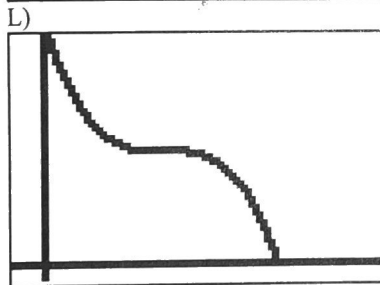
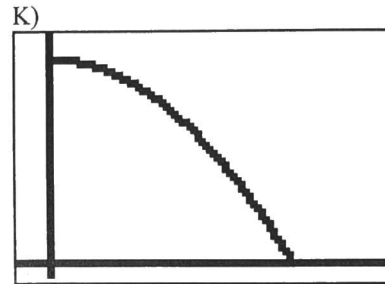
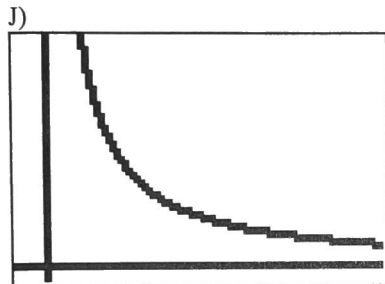
- A) The weight of your jumbo box of Fruity Flakes decreases by an equal amount every week.
- B) The machinery depreciated rapidly at first, but its value declined more slowly as time went on.
- C) In free fall, your distance from the ground decreases at an increasing rate.
- D) For a while it looked like the decline in profits was slowly down, but then began declining ever more rapidly.

E) x	0	1	2	3	4	5
y	400	384	336	256	144	0

F) x	0	1	2	3	4	5
y	400	320	240	160	80	0

G) x	0	1	2	3	4	5
y	400	184	98	63	49	43

H) x	0	1	2	3	4	5
y	412	265	226	224	185	38

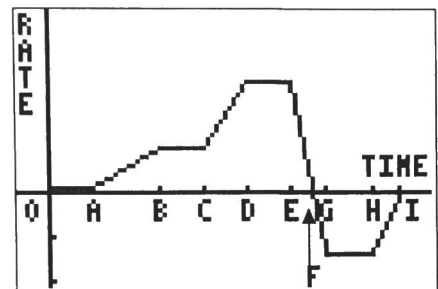


III. Interpretation: The graph represents the rate at which the volume of water in a reservoir is changing for time $t > 0$.

What is happening to the volume of water in the reservoir if the rate is negative? _____

For each of the following statements, give the largest interval on which:

- A) The volume of the water is increasing. _____
- B) The volume of the water is constant. _____
- C) The volume of the water is increasing the fastest. _____
- D) The volume of the water is decreasing. _____



On what intervals is the water level in the reservoir not changing _____

- Increasing at a constant rate _____
- Increasing at an increasing rate _____
- Increasing at a decreasing rate _____
- Decreasing at a constant rate _____
- Decreasing at an increasing rate _____
- Decreasing at a decreasing rate _____

AB+BC

1. Match the points labeled on the curve in Figure 2.6 with the given slopes.

Slope	Point
-3	
-1	
0	
1/2	
1	
2	

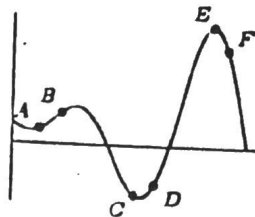


Figure 2.6

2. For the function shown in Figure 2.7, at what labeled points is the slope of the curve positive? Negative? Which labeled point has the greatest (i.e., most positive) slope? The least slope (i.e., negative and with the largest magnitude)?

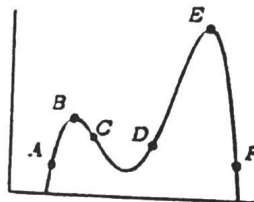


Figure 2.7

3. For the graph $y = f(x)$ shown in Figure 2.8, arrange the following numbers in ascending (i.e., smallest to largest) order:

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

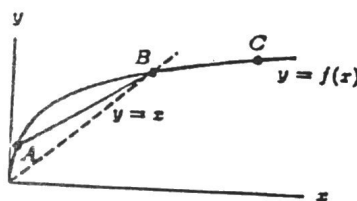


Figure 2.8

4. Draw a possible graph of $y = f(x)$ given the following information about its derivative.

- $f'(x) > 0$ on $1 < x < 3$
- $f'(x) < 0$ for $x < 1$ and $x > 3$
- $f'(x) = 0$ at $x = 1$ and $x = 3$

5. Draw a possible graph of $y = f(x)$ given the following information about its derivative.

- $f'(x) > 0$ for $x < -1$
- $f'(x) < 0$ for $x > -1$
- $f'(x) = 0$ at $x = -1$

6. In the graph of f in Figure 2.26, at which of the labeled x values is

- (a) $f(x)$ greatest? (b) $f(x)$ least? (c) $f'(x)$ greatest? (d) $f'(x)$ least?

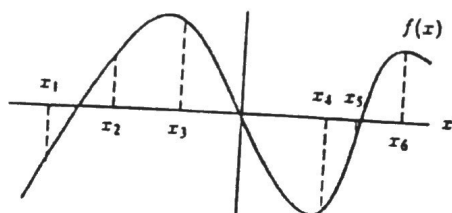


Figure 2.26