Concept of Derivative: Vocabulary, Slope of Secant, Slope of Tangent

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

J)

K)

L)

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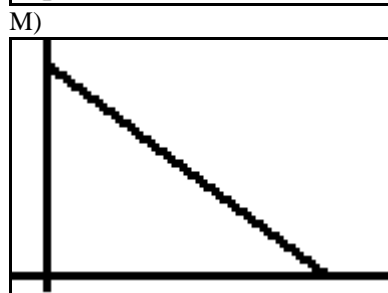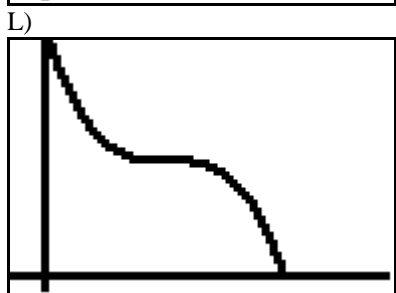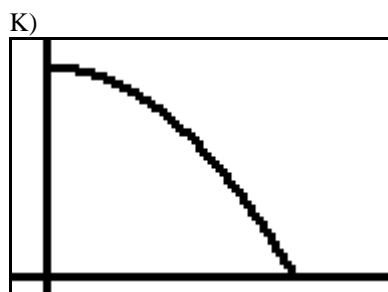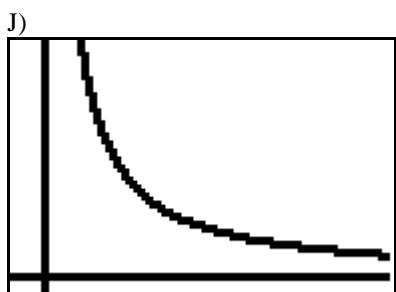
III. Interpretation: The graph represents the **<u>rate</u>** at which the volume of water in a reservoir is changing for time $t > 0$.

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._____
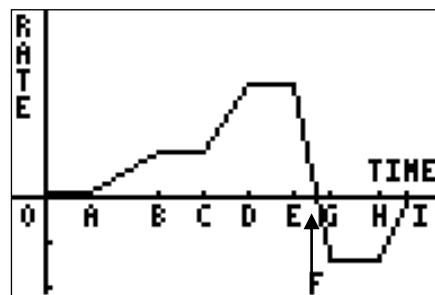
On what intervals is the water level in the reservoir   not changing_____

Increasing at a constant rate_____   Decreasing at an constant rate_____
Increasing at a increasing rate_____   Decreasing at an increasing rate_____
Increasing at a decreasing rate_____   Decreasing at an decreasing rate_____