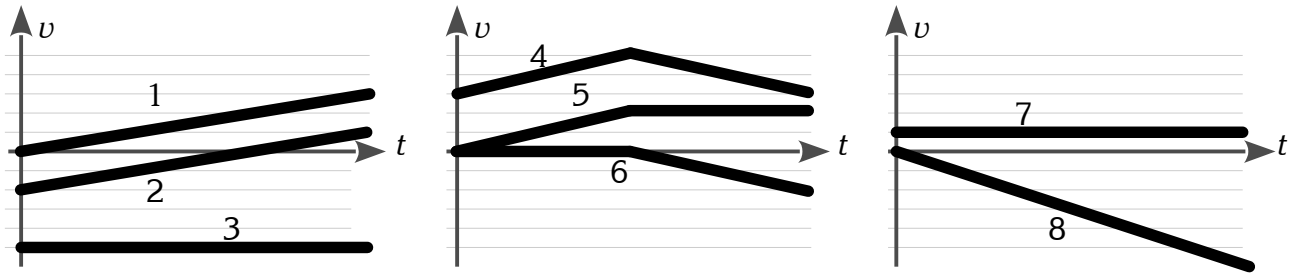
Name: _____ Period: _____ Date: _____

Acceleration Review – Part 1



1) These questions refer to velocity graphs of several objects seen above. You do not need to "use" every object. You may use an object more than once.
   A) Which object moves backward with a constant velocity the whole time?

   B) Which object is motionless for a while?

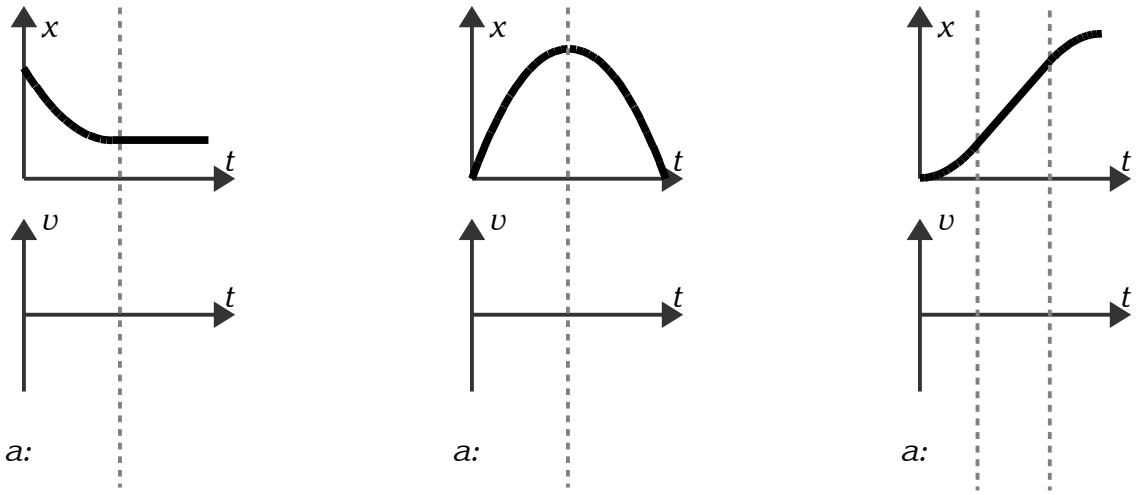
   C) Which object moves in two different directions?

   D) Which object shows the strongest acceleration?

   E) Which TWO objects are always moving forward, never motionless for even a moment?

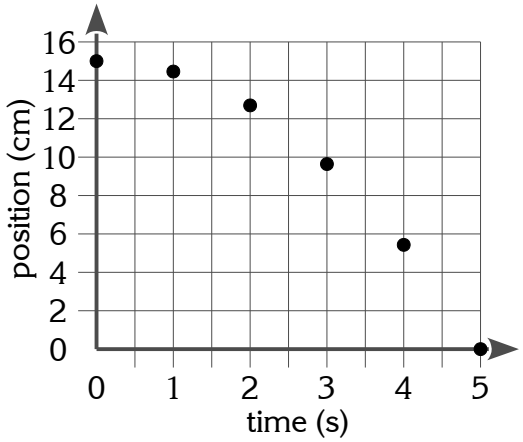
   F) Describe the motion of object 5 in words.

2) For each position graph below, fill in a corresponding velocity graph and indicate the sign of the acceleration (+, −, or 0) during each time interval.



3) The following questions refer to this set of data and graph. The data show the position of a cart rolling down an inclined track after being released from rest.

Time (s)	Position (cm)
0	15.0
1	14.4
2	12.6
3	9.6
4	5.4
5	0.0



A) Loosely sketch a velocity graph for the cart.

B) Calculate the cart's acceleration.

C) What was the cart's position at the time 3.14 s?

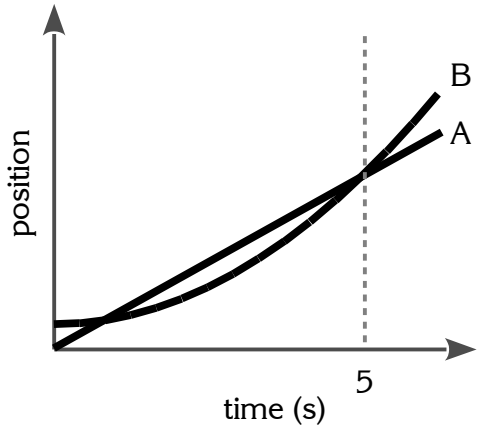
D) What is the cart's average velocity for the full time interval, from 0 s to 5 s?

E) What is the cart's average velocity during the time interval t_i=2 s to t_f=4 s?

4) Complete the following table:

Direction of velocity	Direction of acceleration	Speeding up / slowing down
+		speeding up
	+	slowing down
-	-	
+		slowing down

5) The following questions refer to this graph of the motion of two objects, A and B.

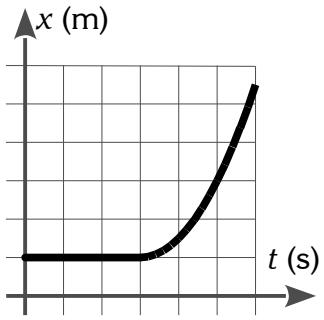


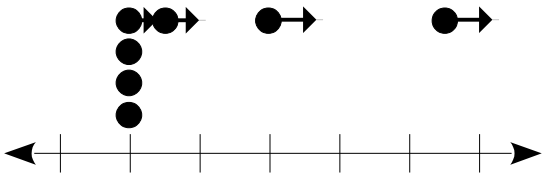
Which object...

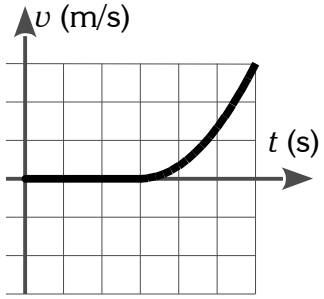
A)	...has a positive acceleration?	A	B	neither	both
B)	...has a positive velocity?	A	B	neither	both
C)	...slows down?	A	B	neither	both
D)	...moves further in the first 5 s?	A	B	neither	both
E)	...has a larger average velocity during the first 5 s?	A	B	neither	both
F)	...has a larger velocity at the exact moment of 5 s?	A	B	neither	both

6) Circle the representation that doesn't match the others, then write/draw a corrected version.

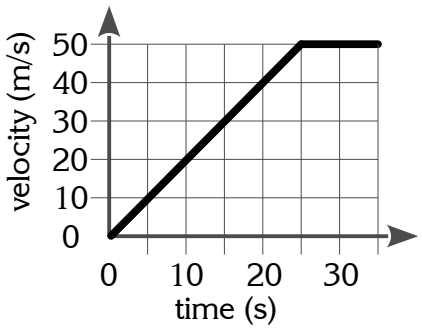
The object starts at 1 m and stays there for 3 s. Then, it accelerates away at a rate of 1 m/s^2 for 3 more seconds.







7) The following questions refer to this velocity graph:



A) What happens at t=25 s?

B) How far does the object move in the first 25 s? (That is, what is its displacement?)

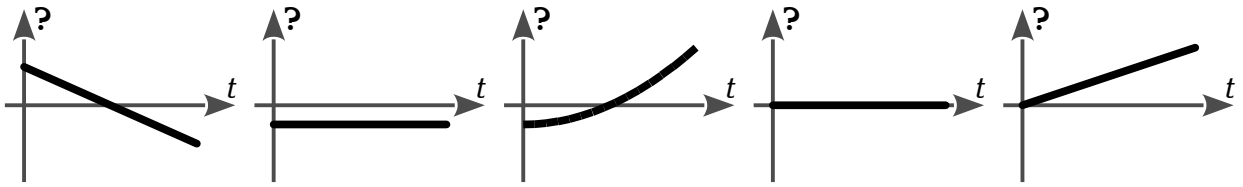
C) What is the acceleration during the first 25 s?

D) What is the object's total displacement for the entire 35 s?

E) What is the object's average velocity during the first 25 s?

F) What is the object's average velocity during the entire 35 s?

8) The following questions refer to these unlabeled graphs. (The horizontal axis is time, but the other axis is unknown.)



Which ones COULD be...

A) ...position graphs for objects that are not moving?

B) ...velocity graphs for objects that are not moving?

C) ...position OR velocity graphs for objects that are accelerating?

D) ...position graphs for objects that move in two different directions?

E) ...velocity graphs for objects that move in two different directions?

F) ...velocity graphs that show a zero acceleration?