NAME _____   DATE _____

DIRECTIONS: Answer each of the following questions. Be certain to show all supporting work, for little to no credit will be given, otherwise. Clearly indicate all answers – including units when appropriate – in the space provided. Do not waste time on any one problem, but instead come back to previous problems if time permits.

1. Consider the dot diagrams for objects A, B, and C. The arrow represents the direction of motion. Match the motion of objects A, B, and C to the correct corresponding x-t graph and v-t graph by clearly placing the graph number in the table below.

	X-T	V-T
A		
B		
C		
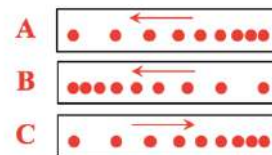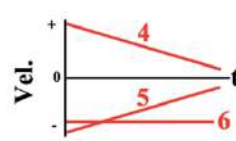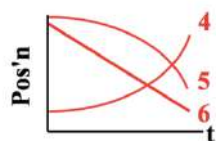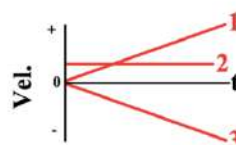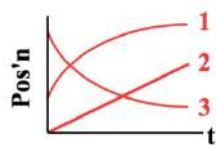
2. One of the following representations is not like the others. Place a check mark underneath the one that doesn't belong.
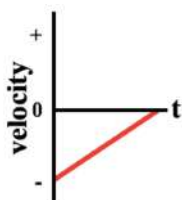
Time	Velocity
0.0 s	-16.0 m/s
1.0 s	-12.0 m/s
2.0 s	-8.0 m/s
3.0 s	-4.0 m/s
4.0 s	0.0 m/s

_____   _____   _____   _____   _____

3. Given the following velocity-time graph, construct the corresponding position-time graph. Be certain to observe and match your graph to the corresponding time intervals given in the original graph.
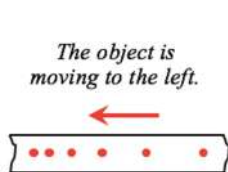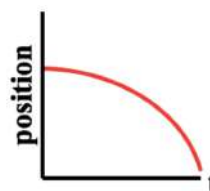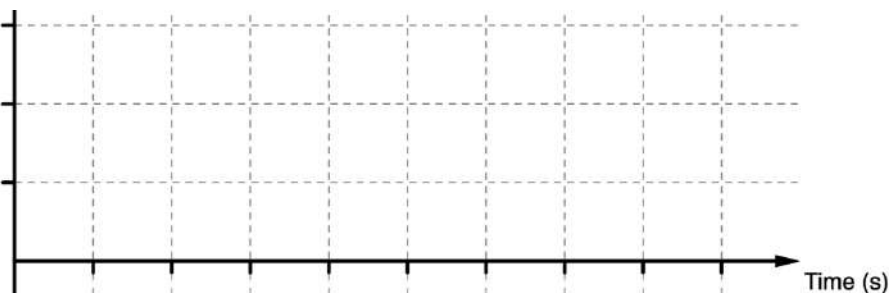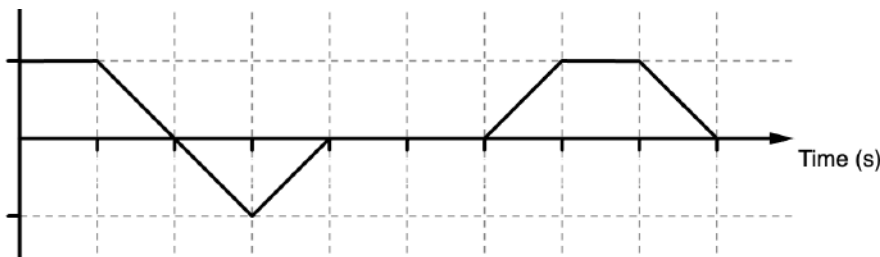
NAME _____   DATE _____

DIRECTIONS: Answer each of the following questions. Be certain to show all supporting work, for little to no credit will be given, otherwise. Clearly indicate all answers – including units when appropriate – in the space provided. Do not waste time on any one problem, but instead come back to previous problems if time permits.

1. A fan cart pushes a 250-g block along a horizontal track with a force of 0.56 N. There is a drag force from the air of 0.35 N and an upward pull force of 0.12 N from a balloon tied to the block. The block moves at constant velocity along the track.

    A. Draw an accurate motion map of the moving block along the track.

    B. Construct a free-body diagram showing all the forces acting on the block. Be certain to write all forces using proper notation and draw them to scale relative to one another.
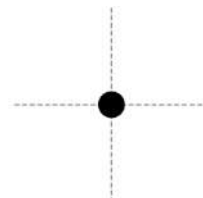
    C. Write the net force equation(s) for the block.

    D. What are the identities of and values for any forces not mentioned in the introduction?

    E. Determine the coefficient of kinetic friction between the cart and track.

2. Below are four different sets of data. The manipulated variable (set P) is the same for all sets.

Manipulated Variable (P)	Responding Variable (Q)	Responding Variable (R)	Responding Variable (S)	Responding Variable (T)
2.0	5.0	1.0	0.0	6.0
3.0	7.0	1.5	0.5	4.0
4.0	9.0	2.0	1.0	3.0
6.0	13.0	3.0	2.0	2.0
8.0	17.0	4.0	3.0	1.5

    A. Which data sets (_____ vs. P) could show the relationship between mass and acceleration? Explain.

    B. Which data sets (_____ vs. P) could show the relationship between force and acceleration? Explain.