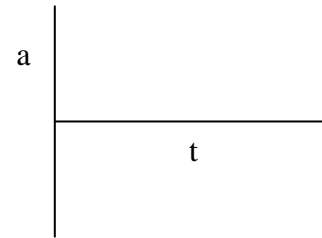
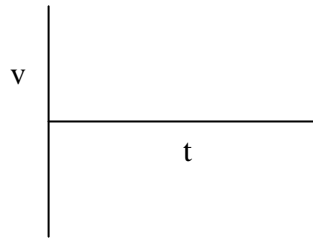
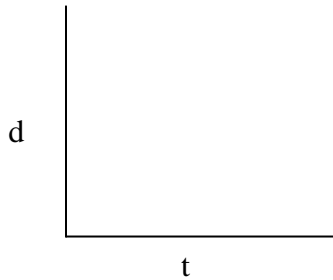


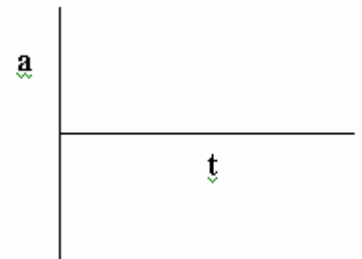
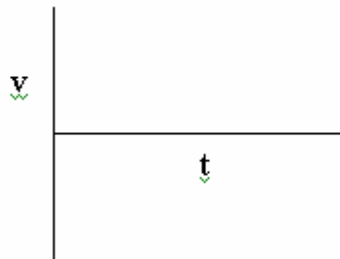
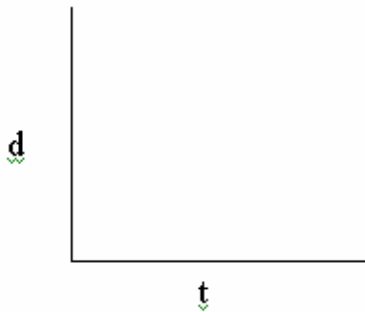
Chapter 2: Motion Graph Review Activity

Directions: Demonstrations will be made at the front of the room. Create motion graphs for each of the demonstrations.

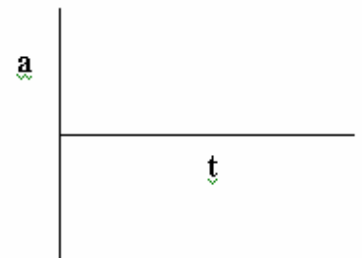
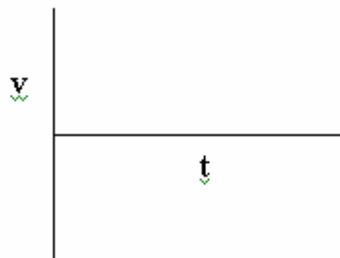
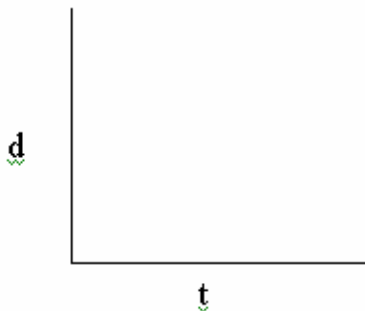
1. Cart is pushed across the track away from detector at a constant velocity



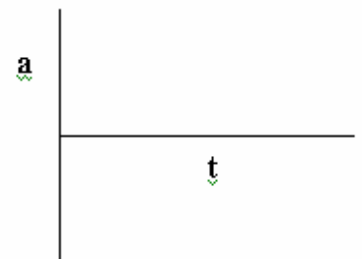
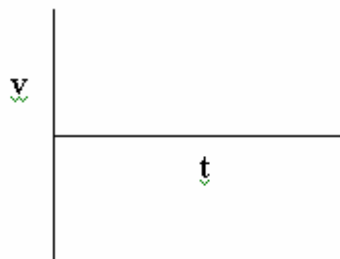
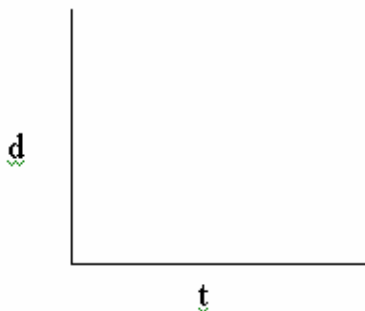
2. Cart is pushed across the track toward the detector at a constant velocity



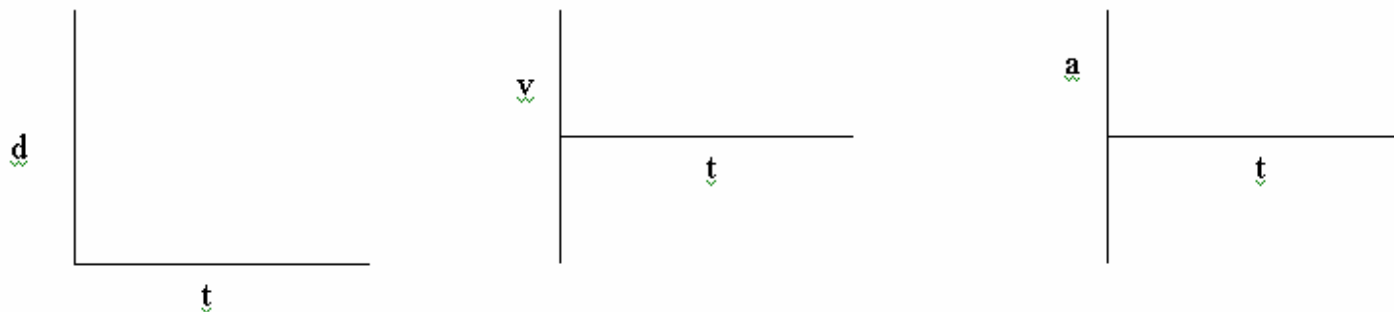
3. Cart rolls down track towards detector



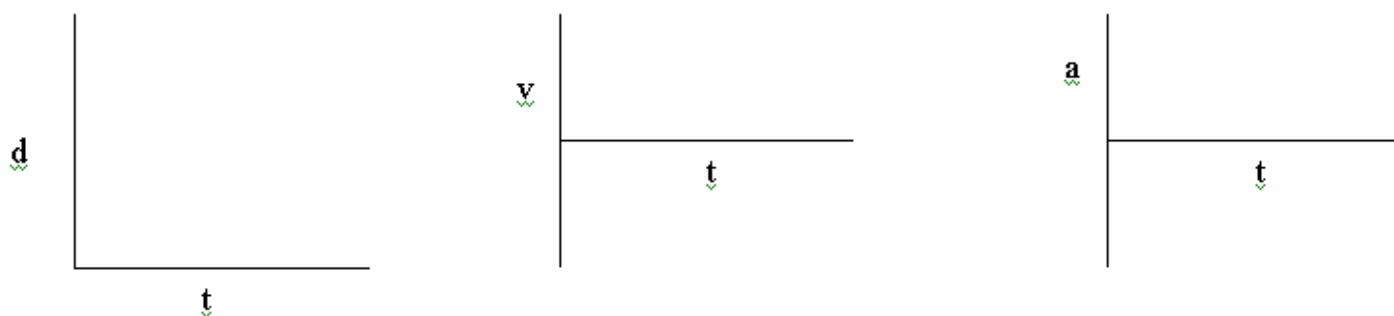
4. Cart rolls up track away from detector



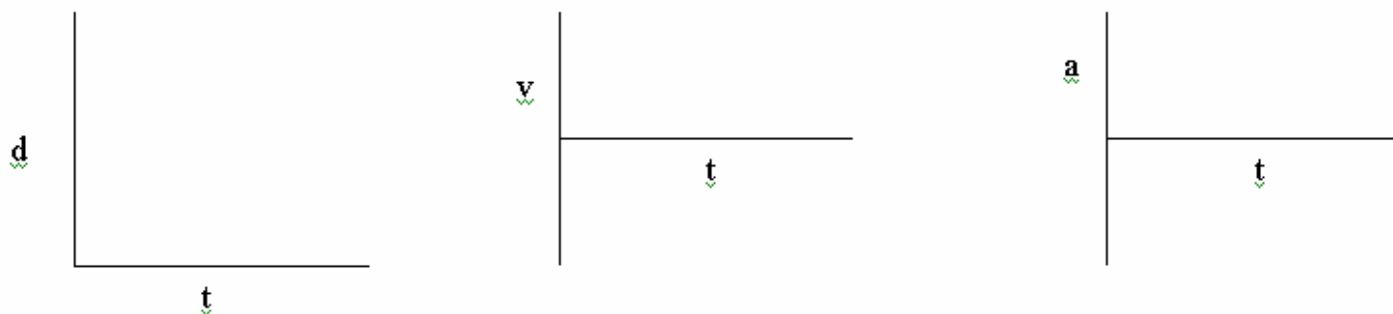
5. Cart rolls up track toward detector



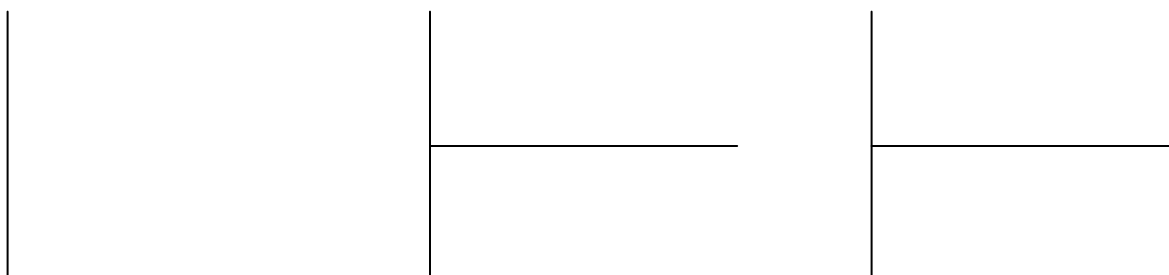
6. Cart rolls down track away from detector



7. A Ball is thrown up away from the detector and is allowed to fall back down to the same height.



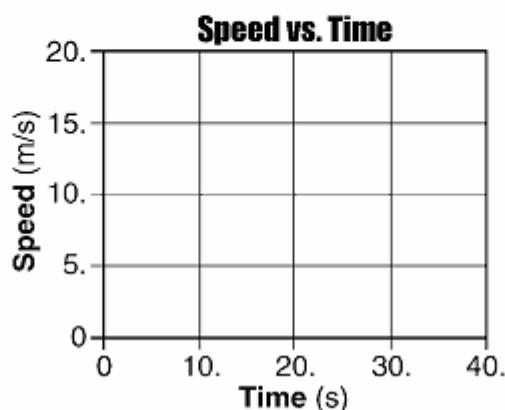
8. A ball is allowed to fall freely to the ground. The detector is above the ball.



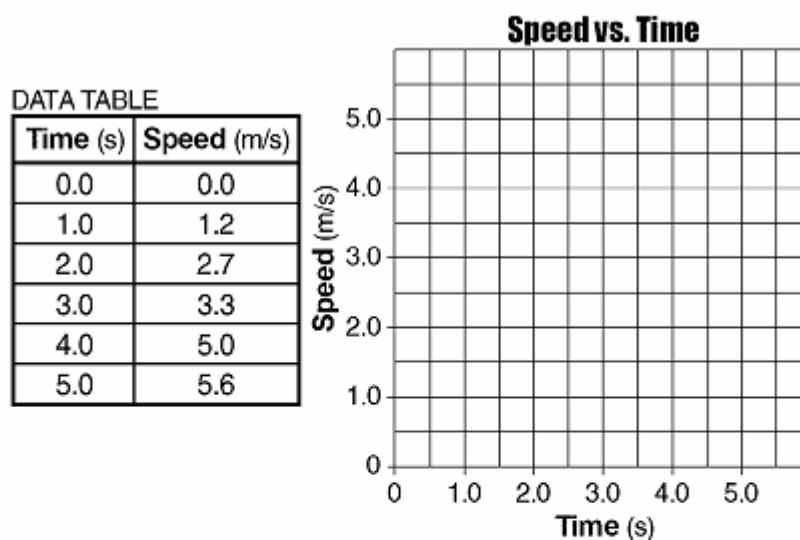
Motion Graph HW Assignment

1. A car on a straight road starts from rest and accelerates at $1.0 \text{ meter per second}^2$ for 10. seconds. Then the car continues to travel at constant speed for an additional 20. seconds.

- (a) Based on the information given, determine the speed of the car at the end of the *first* 10. seconds.
- (b) Use a ruler or straightedge to construct a graph on the grid below of the car's speed as a function of time for the entire 30.-second interval.

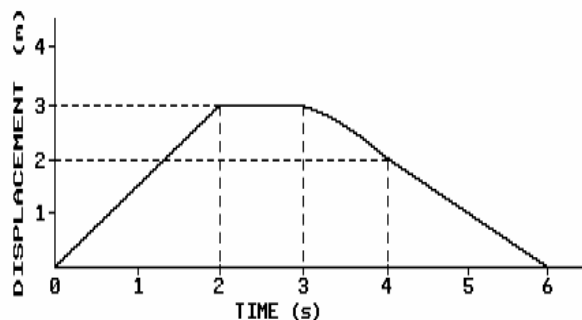


2.



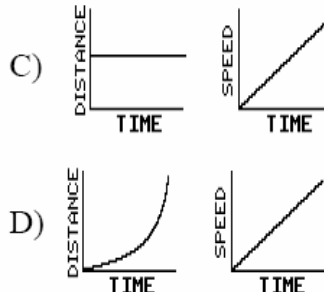
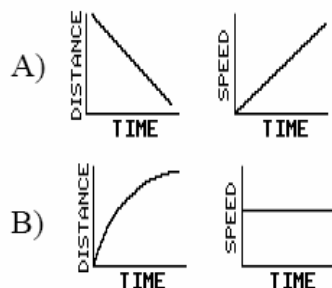
- (a) Plot the data points on the graph above.
- (b) Draw the line of best-fit on the graph above.
- (c) On the same grid, sketch a line representing an object decelerating uniformly in a straight line.
- (d) Based on your line of best-fit, what is the acceleration of the object?

The graph below represents the displacement of an object as a function of time.

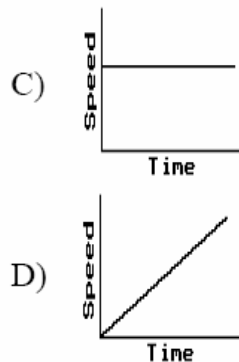
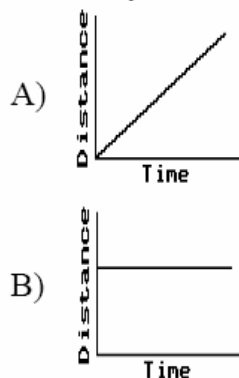


- 3) What is the velocity of the object at $t = 1$ second?
 - A) 2.0 m/s
 - B) 1.0 m/s
 - C) 1.5 m/s
 - D) 3.0 m/s
- 4) What is the average velocity of the object from $t = 0$ to $t = 3$ seconds?
 - A) 0 m/s
 - B) 1.0 m/s
 - C) 2.0 m/s
 - D) 3.0 m/s
- 5) During which time interval is the object accelerating?
 - A) 0-2 s
 - B) 2-3 s
 - C) 3-4 s
 - D) 4-6 s
- 6) How far is the object from the starting point at the end of 3 seconds?
 - A) 9.0 m
 - B) 0 m
 - C) 2.0 m
 - D) 3.0 m
- 7) During which time interval is the object at rest?
 - A) 0-2 s
 - B) 2-3 s
 - C) 4-6 s
 - D) 3-4 s

8. Which pair of graphs represents the same motion?

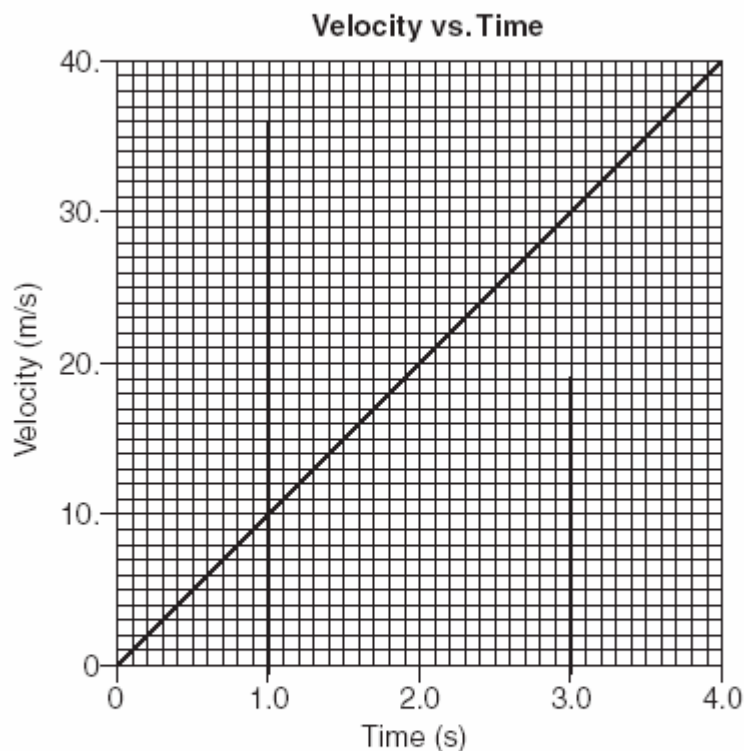


9. Which graph best represents the motion of an object initially at rest and accelerating uniformly?



10.

The graph below shows the velocity of a race car moving along a straight line as a function of time.

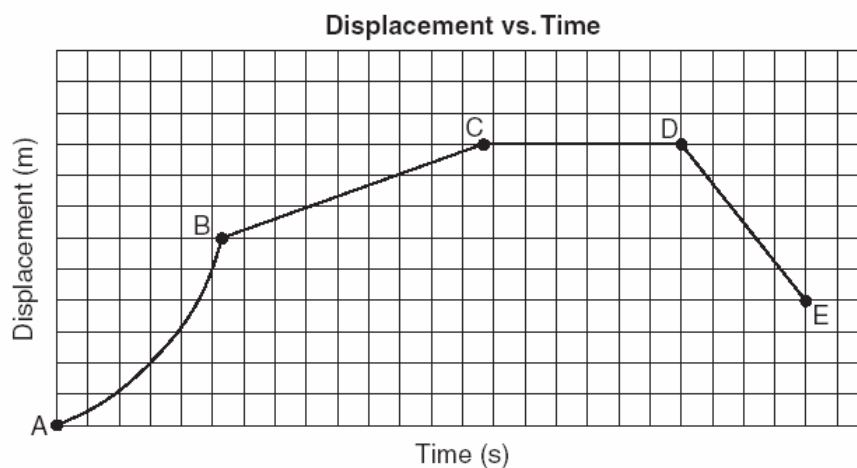


What is the magnitude of the displacement of the car from $t = 2.0$ seconds to $t = 4.0$ seconds?

- | | |
|-----------|-----------|
| (1) 20. m | (3) 60. m |
| (2) 40. m | (4) 80. m |

11.

The displacement-time graph below represents the motion of a cart initially moving forward along a straight line.



During which interval is the cart moving forward at constant speed?

- | | |
|---------------|---------------|
| (1) <i>AB</i> | (3) <i>CD</i> |
| (2) <i>BC</i> | (4) <i>DE</i> |