Name _____Answer Key_____ Date _____

Honors Physics Kinematics WS #6H

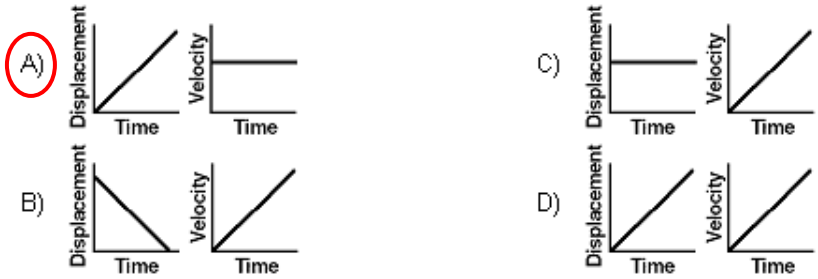
Period _____ Mrs. Nadworny

(15 pts)

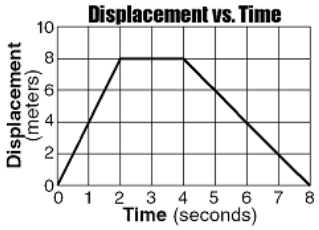
Motion Graphs Practice

Directions: For the following problems, select the best choice that answers the question.

1. Which pair of graphs represents the same motion?



The graph below represents the relationship between the displacement of an object and its time of travel along a straight line.

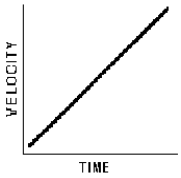


2. What is the magnitude of the object's total displacement after 8.0 seconds?
   A) 16 m B) 8 m C) 2 m D) 0 m

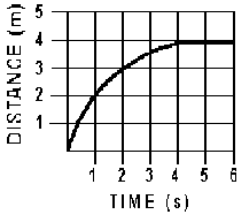
3. What is the average speed of the object during the first 4.0 seconds?
   A) 2 m/s B) 0 m/s C) 8 m/s D) 4 m/s $v = \frac{\Delta d}{t} = \frac{8\text{ m}}{4.0\text{ s}} = 2\text{ m/s}$

Directions: For the following problems, answer using complete sentences and the GUESS method where appropriate. Show ALL work.

4. The graph below represents the motion of a body moving along a straight line. According to the graph, which quantity related to the motion of the body is constant? ___Acceleration___



5. The graph below represents the relationship between distance and time for an object. What is the instantaneous speed of the object at t = 5.0 seconds?



v = 0 m/s (slope is zero. Object is not moving)

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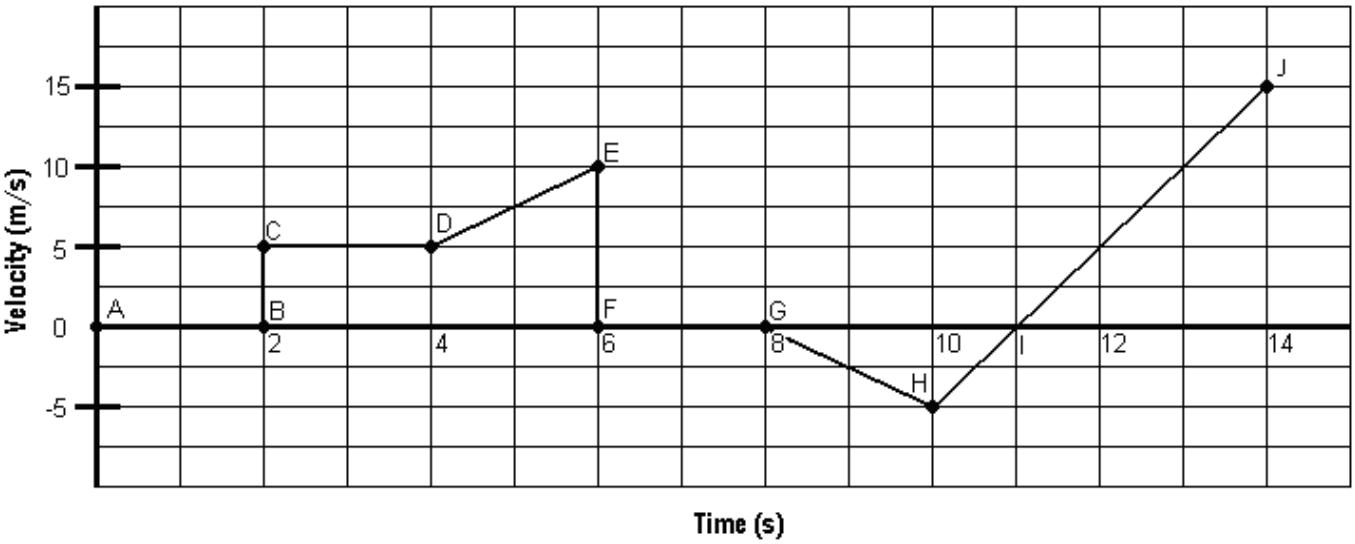
Velocity vs. Time



1. What is the physical significance of the slope of a velocity versus time graph? _acceleration
2. What is the physical significance of the area under the curve of a velocity versus time graph? ___distance ___
3. Calculate the distance traveled between points C and D.

$$d = vt = 5\frac{m}{s}(2s) = 10m$$

4. Which direction is the object moving between points C and D? ____forward/away_____
5. During the interval CD is the speed increasing, decreasing, or remaining the same? __RTS__
6. Calculate the distance traveled between points G and H.

$$d = \frac{1}{2}bh = \frac{1}{2}(5\frac{m}{s})(2s) = 5m$$

7. Which direction is the object moving between points G and H? __backwards/towards___
8. During the interval GH is the speed increasing, decreasing, or remaining the same? increasing
9. During which interval did the object travel the greatest distance? CD GH IJ
10. Calculate the acceleration of the object between points D and E.

$$a = \frac{\Delta v}{t} = \frac{10\frac{m}{s} - 5\frac{m}{s}}{2s} = 2.5\frac{m}{s^2} \text{ foward or } +2.5\frac{m}{s^2}$$

11. Describe the motion of the object between points F and G. ___at rest_____
12. During which interval(s) does the object have negative acceleration? ____GH_____
13. During which interval(s) is the object at rest? ___AB__FG__
14. At which point does the object reverse its direction of motion? __I, G_____