Name _____Answer Key_____ Date _____

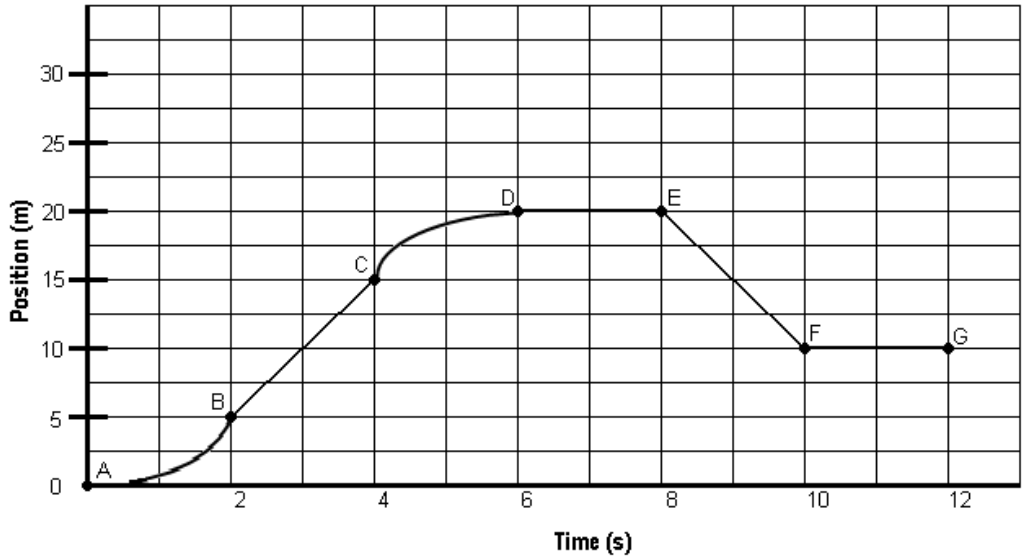
Honors Physics Kinematics WS #4H

Period _____ Mrs. Nadworny

Motion Graphs

Directions: For the two graphs provided, determine which type of motion is occurring. Answer the questions below the graph, being **as specific as possible**.

Position vs. Time



1. What is the physical significance of the slope of a position versus time graph? ___speed___

2. What is the distance traveled between points B and C? _____10 m_____

3. Calculate the velocity between points B and C.

$$v = \frac{d}{t} = \frac{10m}{2s} = 5\,\frac{m}{s} \text{ away or } +5\,\frac{m}{s}$$

4. What is the distance traveled between points D and E? _____0 m_____

5. During which interval(s) was the object traveling at constant speed? __BC _____EF _____

6. During which interval(s) was the object accelerating? _____AB_____

7. During which interval(s) was the object decelerating? _____CD_____

8. During which interval(s) was the object at rest? _____DE _____FG _____

9. What was the displacement for the entire trip? _____+10 m_____

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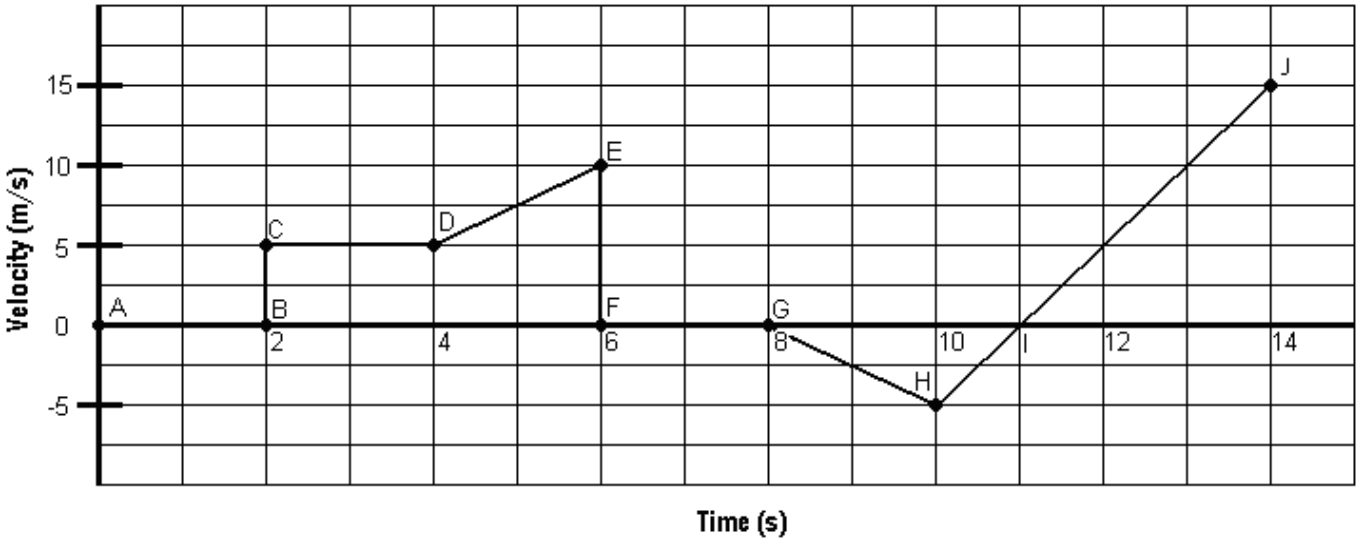
Velocity vs. Time



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.

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

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.

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

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.

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

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_____