

PHYSICS 11

Name: \_\_\_\_\_

Uniform Motion Graphs Investigation

Plot **d vs. t** and **v vs. t** graphs for the following charts

Part A

Time (s)	Displacement (m)	Displacement during time interval (m)	Average velocity during time interval (m/s)
0.0	0		
1.0	12	12 m	12 m/s
2.0	24	12 m	12 m/s
3.0	35	11 m	11 m/s
4.0	47	12 m	12 m/s
5.0	60	13 m	13 m/s
6.0	72	12 m	12 m/s
7.0	85	13 m	13 m/s
8.0	97	12 m	12 m/s
9.0	108	11 m	11 m/s

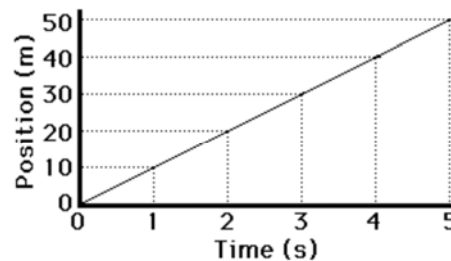
Determine the slope of the **d vs. t** graph. (Calculate on the graph itself)

1. What does the slope represent? *Velocity*
2. How does the value of the slope compare to the average velocity in the chart? *close to the same*
3. Using the **d vs. t** graph determine the displacement after 4.5 s. Explain how you calculated it. *56m I asked Carter*
4. What is the area under the **v vs t** graph? *108m*
5. What does this area represent? *displacement*
6. Using the **v vs. t** graph determine the displacement after 6.5 s. Explain how you calculated it. *area up to 6.5 s*
7. How would the slope change if the object travelled faster? *steeper* backward? *negative*

Questions:

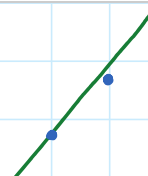
Use the graph to answer questions 1. & 2.

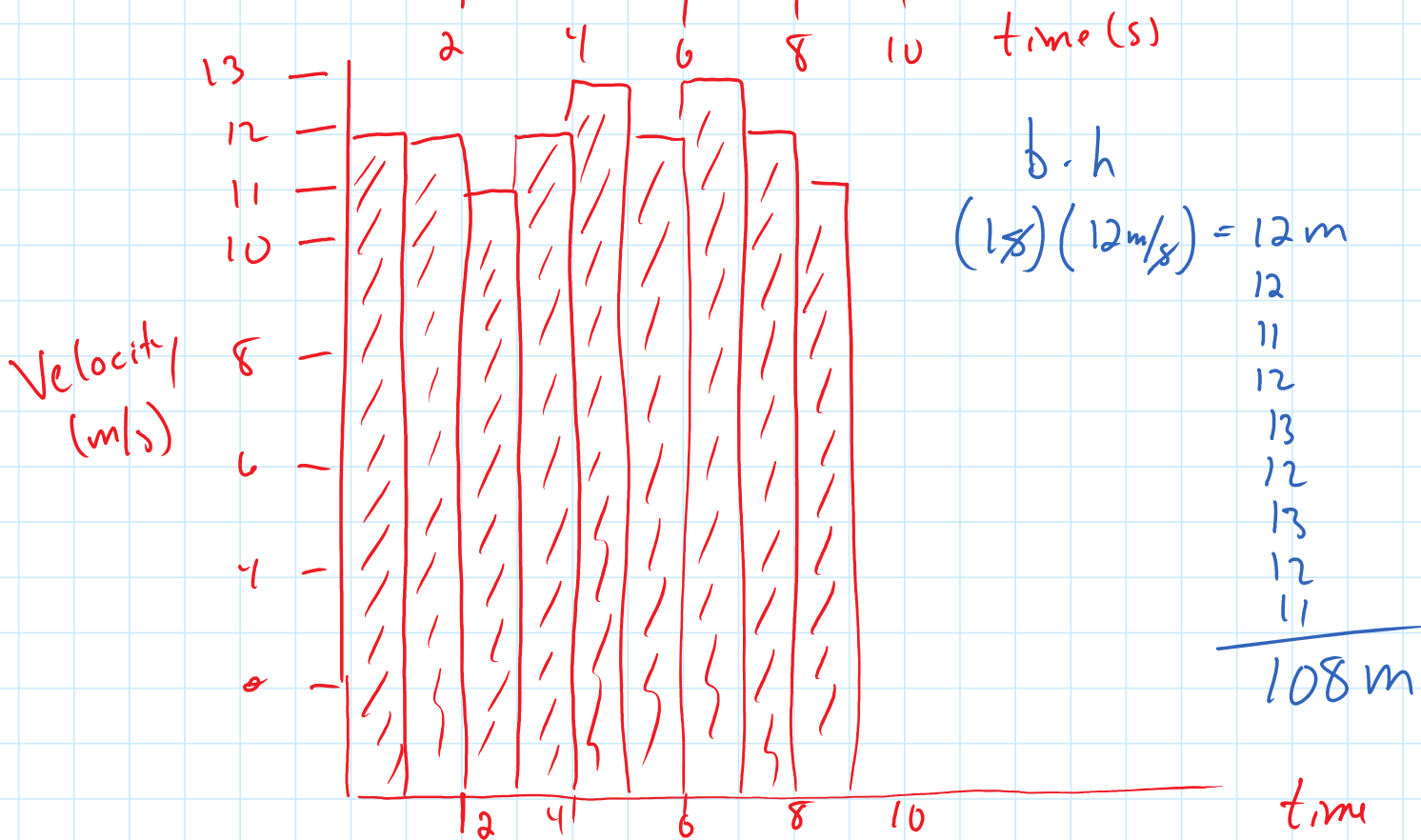
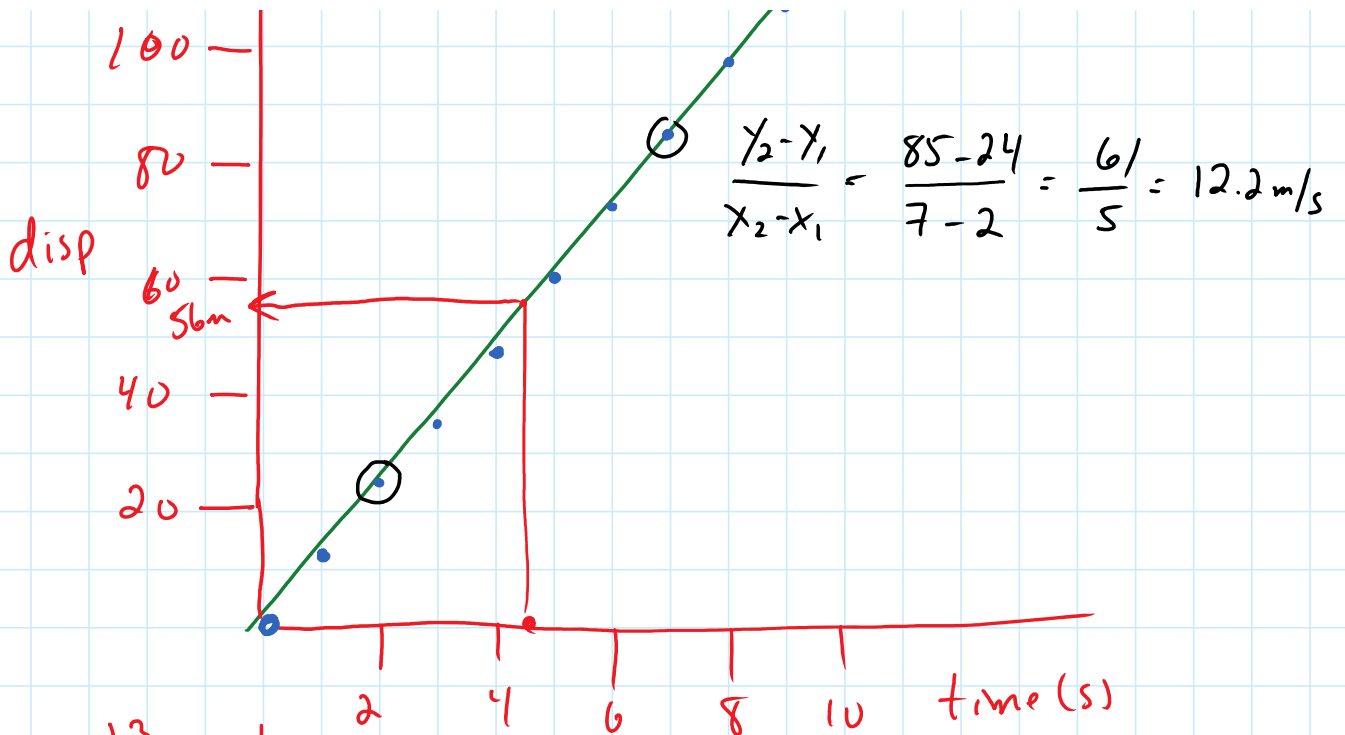
1. Determine the velocity of the object from the slope.



*0*  
*100*

*d vs t.*





10. For each of the following time intervals, describe the motion of the object represented by the position-time graph. Be sure to include directions when needed.

- (a) 0 s–6 s
- (b) 6 s–10 s
- (c) 10 s–12 s
- (d) 12 s–16 s
- (e) 16 s–18 s
- (f) 18 s–20 s



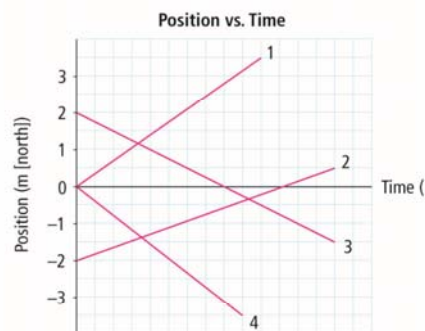
11. Calculate the displacement for each of the time intervals in question 10.

12. For each of the time intervals in question 10, identify the slope of the line as positive, negative, or zero.

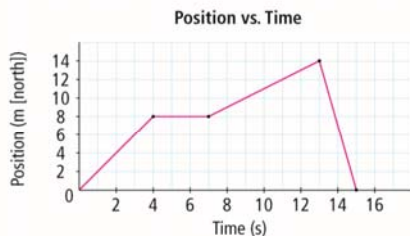
13. What total distance did this object travel in 20 s?

14. Match each of the following descriptions to the appropriate line.

- (a) The object starts at the origin and travels south with uniform motion.
- (b) The object starts 2 m [S] and travels north with uniform motion.
- (c) The object starts at the origin and travels north with uniform motion.
- (d) The object starts 2 m [N] and travels south with uniform motion.



15. Use the graph below to fill in the chart below



Time interval (s)	0 s to 4 s	4 s to 7 s	7 s to 13 s	13 s to 15 s
Velocity (positive, negative, or zero)				
Motion of the object				

During what time interval was the object moving the fastest? What direction was the object moving?