

One-Dimensional Motion

Name _____
Pre-AP Physics Period ____

Basic Information:

Complete the following:

- The slope on a Position vs. Time graph indicates _____.
- The slope on a Velocity vs. Time graph indicates _____.
- The area between the plot of velocity (on a Velocity vs. Time graph) and the horizontal axis indicates _____.

Equations: Complete the table, writing the equation for each quantity in the appropriate box:

Displacement	Average Speed	Average Velocity	Average Acceleration

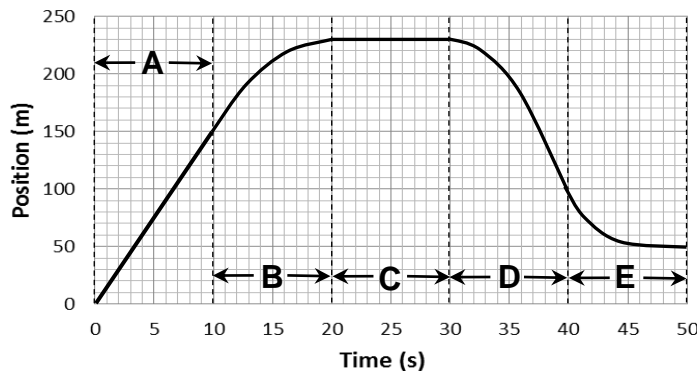
Application:

Distance, Displacement, Speed, and Velocity: SHOW ALL WORK

The graph shown shows the motion of a unicyclist as it varies with time. Answer part (a) using the words speeding up, slowing down, moving with constant velocity, OR not moving and (b) using the words positive, negative, or neither:

- From 0 to 10 seconds, the unicyclist is _____ in the _____ direction.
(a) _____
(b) _____
- From 10 to 20 seconds, the unicyclist is _____ in the _____ direction.
(a) _____
(b) _____
- From 20 to 30 seconds, the unicyclist is _____ in the _____ direction.
(a) _____
(b) _____
- From 30 to 40 seconds, the unicyclist is _____ in the _____ direction.
(a) _____ (b) _____
- From 40 to 50 seconds, the unicyclist is _____ in the _____ direction.
(a) _____ (b) _____

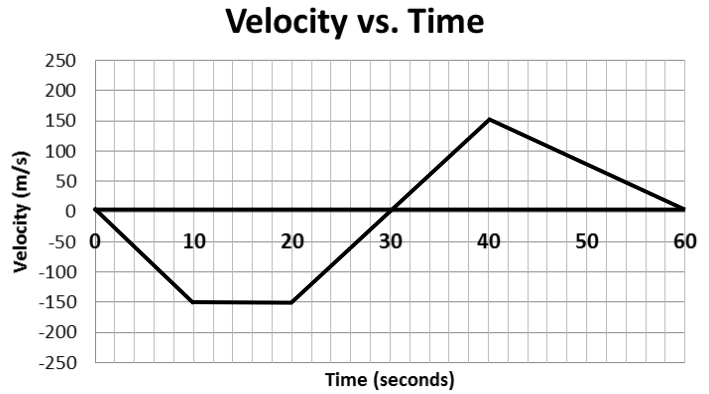
Position vs. Time



- What is the total distance the traveled during the entire 50 second period?
- What is the total displacement traveled during the entire 50 second period?
- What is the average velocity of the unicyclist from $t = 30$ to 40 seconds?
- What is the average velocity of the unicyclist during the entire 50 second period?
- What is the instantaneous velocity at $t = 6$ seconds?

Distance, Displacement, Speed, and Velocity: SHOW ALL WORK

The graph shown shows the Velocity vs. Time graph of a particle moving along the x-axis. Answer part (a) using the words speeding up, slowing down, moving with constant velocity, OR not moving and (b) using the words positive, negative, or neither:



11. From 0 to 10 seconds, the particle is _____ in the _____ direction.
 (b) _____ (a) _____
12. From 10 to 20 seconds, the particle is _____ in the _____ direction.
 (b) _____ (a) _____
13. From 20 to 30 seconds, the particle is _____ in the _____ direction.
 (b) _____ (a) _____
14. From 30 to 40 seconds, the particle is _____ in the _____ direction.
 (a) _____ (b) _____
15. From 40 to 60 seconds, the particle is _____ in the _____ direction.
 (a) _____ (b) _____

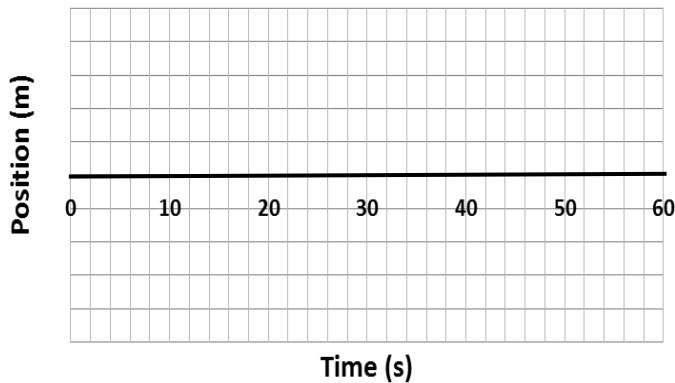
16. What is the average acceleration for the particle from $t = 20$ to 40 seconds?

17. What is the instantaneous acceleration at $t = 50$ seconds?

18. Using the Velocity vs. Time graph, complete the table below, then use the data to construct a position vs. time graph, and an acceleration vs. time graph. SHOW ALL WORK in the space provided:

Time(s)	Δx (m)	x (m)
0		0
10		
20		
30		
40		
50		
60		

Position vs. Time



Acceleration vs. Time

