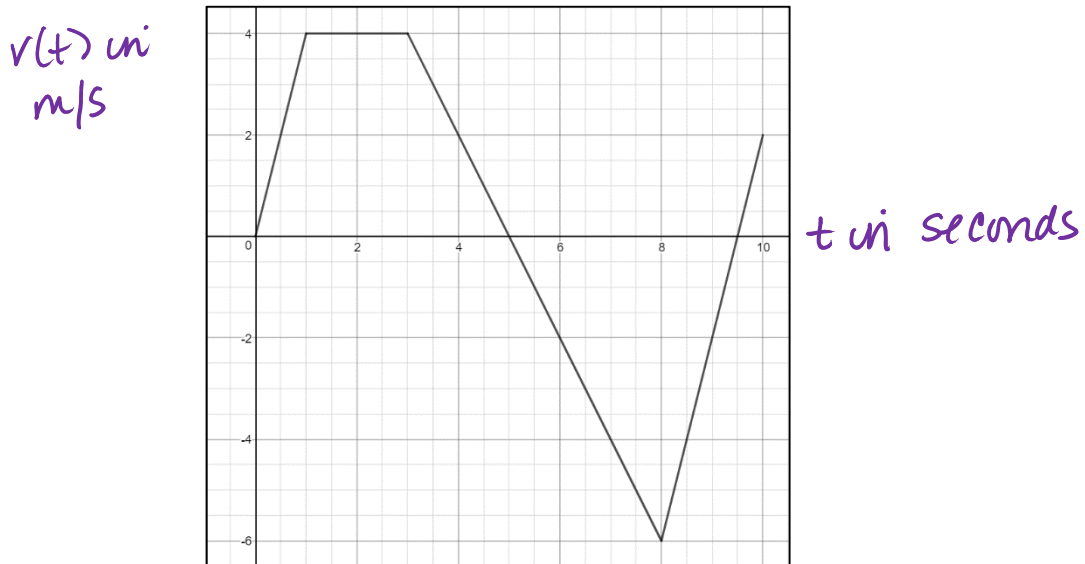


3.4 Interpreting a velocity graph

The following graph describes the velocity as a function of time in seconds of a particle traveling on the  $x$ -axis with distance measured in meters.



- a. Label the axes with appropriate units.
- b. For what interval(s) of time is the particle moving to the right? Justify your answer.  
 $v(t) > 0$  for  $(0, 5)$  and  $(9.5, 10]$  *★ Don't include when  $v(t) = 0$*
- c. For what interval(s) of time is the particle moving to the left? Justify your answer.  
 $v(t) < 0$  for  $(5, 9.5)$
- d. For what interval(s) of time is the particle moving at a constant velocity? Justify your answer.  
 $v(t) = k$  for  $[1, 3]$  *inclusive since this is a velocity graph*
- e. For what interval(s) of time is the particle speeding up? Justify your answer.  
 $v(t) > 0$  AND increasing :  $(0, 1) + (9.5, 10)$   
 $v(t) < 0$  AND decreasing :  $(5, 8)$
- f. For what intervals(s) of time is the particle slowing down? Justify your answer.  
 $v(t) > 0$  AND decreasing :  $(3, 5)$   
 $v(t) < 0$  AND increasing :  $(8, 9.5)$
- g. What is the speed at ...

0.5 seconds	2 seconds	7 seconds	9 seconds
2 m/s	4 m/s	4 m/s	2 m/s

- h. Calculate the acceleration at ...

0.5 seconds	2 seconds	4 seconds	9 seconds	8 seconds
4 m/s <sup>2</sup>	0 m/s <sup>2</sup>	-2 m/s <sup>2</sup>	4 m/s <sup>2</sup>	DNE