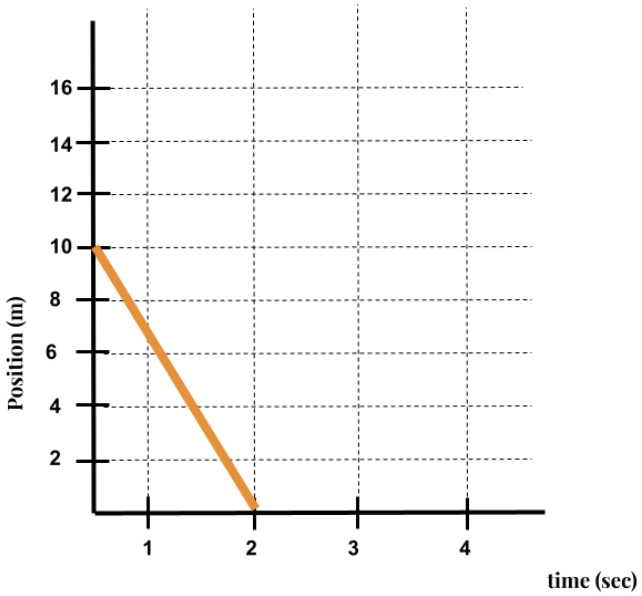
Name:_____ **Period:**_____

Quiz (1): Speed and Velocity ***(21 points) or (15 points)***

The following graph represents the position as a function of time of a moving object. Use this graph for questions 1 and 2.



1. What is the initial position of the object? *(1 pt)*
   A. 2 m B. 4 m C. 6 m D. 8 m E. 10 m

2. What is the velocity of the object? *(1 pt)*
   A. 5 m/s B. -5 m/s C. 10 m/s D. -10 m/s E. 0 m/s

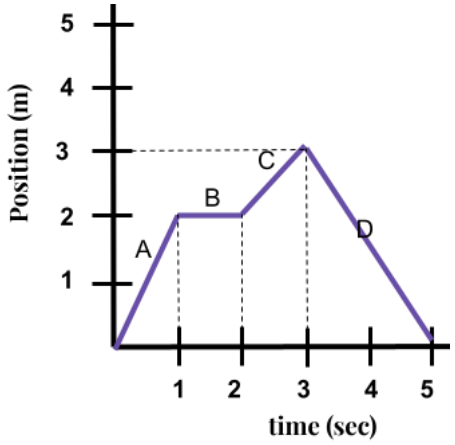
5280ft = 1 mile

3. What is the speed of a motor scooter that can travel 2500ft in 20 min? Give the answer in miles per hour. *(3 pts)*

4. A bowler once measured that she can throw the bowling ball with a speed of 15 miles/hour. If it takes 3 seconds from the ball to travel from the beginning of the lane down to the pins, how far is this distance in feet? *(3 pts)*

5. Susan measured her pet dog (Roger) to be able to run the length of my backyard 500ft in 12 seconds. At this rate, how many miles can my dog run in 2 hours? *(3 pts)*

6. An expectant father paces back and forth, producing the position vs. time graph. (a) Without performing a calculation, indicate whether the father's velocity is positive, negative, or zero on the segments of the graph labeled A,B,C, and D. (b) Calculate the average velocity for each segment, and show that your results verify your answers to part a. *(4 pts)*



7. [Honors]A tortoise and hare decide to run the 1000m dash. The tortoise manages to finish the whole race with an average speed of 0.20 m/s. The hare, on the other hand, went much faster for the first 800m of the race, with an average speed of 2.0 m/s. He was so far in the lead, that he decides to take a nap, and actually falls asleep for 1 hour 15 minutes. When he wakes up, he sees that the tortoise has pulled ahead of him! So the hare hurries to the end of the race with an average speed of 1.5 m/s. Who wins the race and by how much time? *(3 pts)*

8. [Honors]A woman and her dog are out for a morning run to the river, which is located 4km away. The woman runs at 2.5 m/s in a straight line. The dog is unleashed and runs back and forth at 4.5 m/s between his owner and the river, until she reaches the river. What is the total distance run by the dog? *(3 pts)*