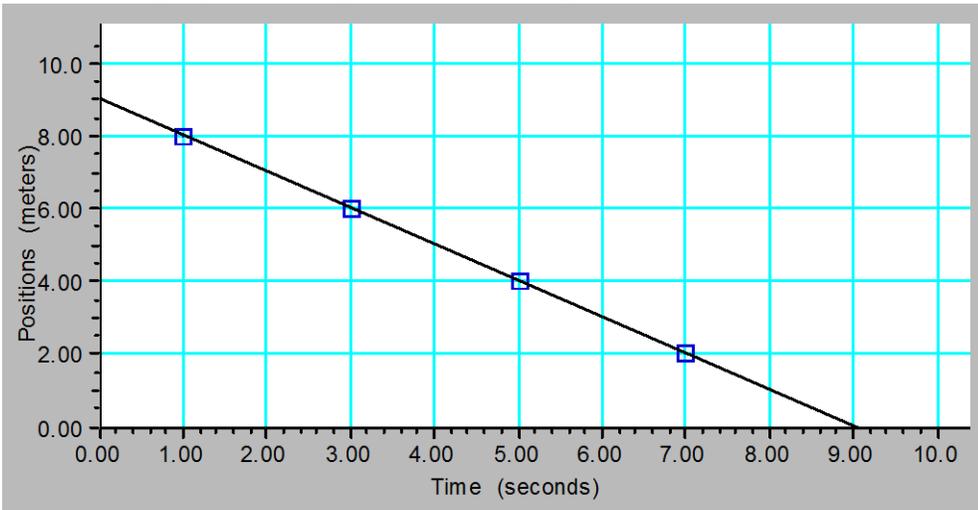1. This is a graph of a toy tractor moving in a classroom. Answer the following.


a.   What is the tractor's speed?

d. What was the tractor's displacement after 5 seconds?

b. What is its VELOCITY?

e. What is the tractor's total displacement?

c. What was the tractor's starting position?

2. Which is faster, the truck from #1 or a toy car that can move 2 m in 1.2 s? Explain how you know.

3. Which is faster, a car that can coast 25 m in 2 s, or Usain Bolt running 100 m in 9.6 s?

4. The graph to the right shows the position of two runners as they compete in a race.

    a. Which runner cheated? How do you know?
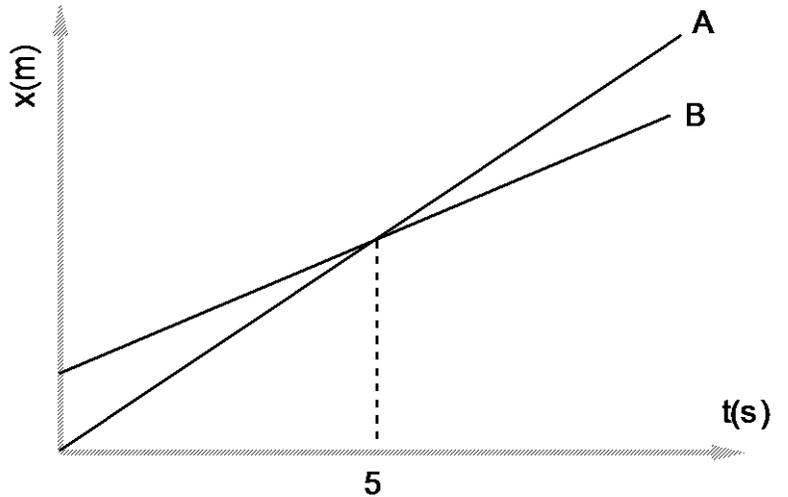
    b. Who won the race? How do you know?

x(m)

A

B

t(s)

5

    c. Who was moving faster during the first five seconds?

    d. Who was moving faster after five seconds?

5. Look at the five graphs below and decide if the object is: (a) Not moving, (b) Moving forward at a constant speed, (c) Moving backward at a constant speed, (d) Speeding up moving forward, (e) Speeding up moving backward, (f) Slowing down moving forward, or (g) Slowing down moving backward.

x   t   x   t   x   t   x   t   x   t
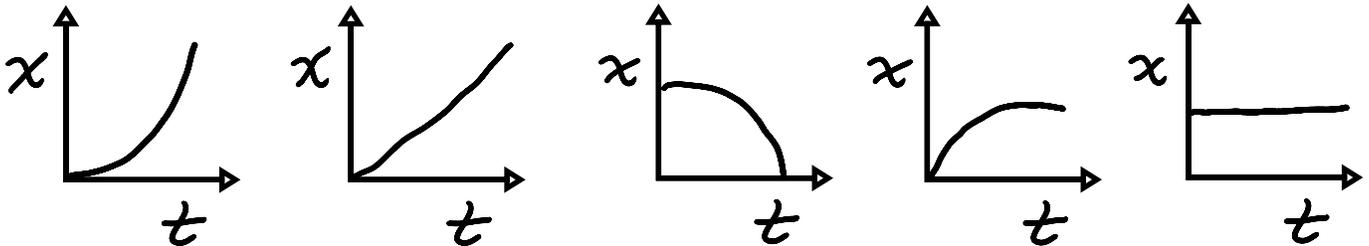
6. While out riding his horse, Dr. McDowell travels 300 m in 5.5 s. Then, he stands still for five seconds before turning his horse around and going back to where he started in 3 s. Sketch a graph for Dr. McDowell below.
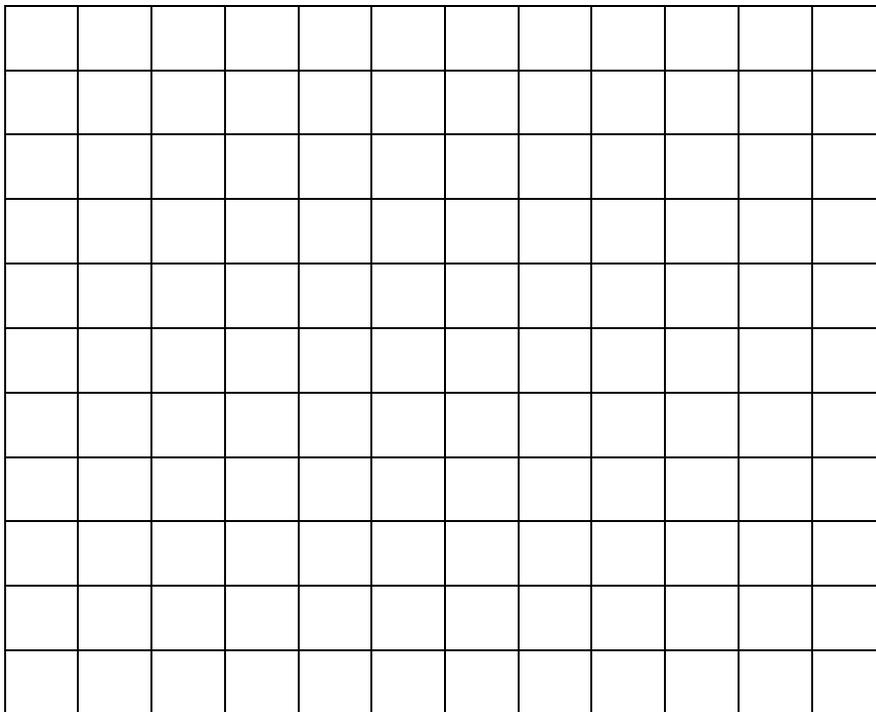
x

t
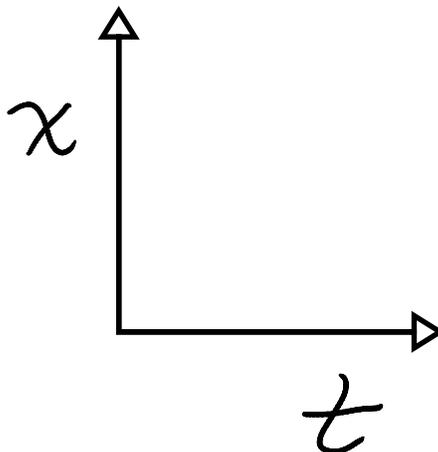
7. From the data below, construct a graph of position vs. time using the space provided.
   Answer questions a-d using your graph.

Time (s)	Position (m)
0	0
1	2
2	4
3	4
4	7
5	10
6	10
7	10
8	5
9	0

a. During what time interval(s) is the velocity of the object zero?

b. What is the velocity of the object between t=7s and t=8s? What is the speed of the object during this interval?

c. What is the object's displacement over the entire interval?

d. What is the total distance the object travels?

8. When you step on the gas, a car will speed up. If your car can go from 10 m/s to 45 m/s in 8 s, what is the acceleration of the car?

9. A speedy dog moving at 2 m/s accelerates at 1.5 m/s^2 in order to catch a squirrel. If the dog accelerates for 2 s, what will the final velocity of the dog be?

10. A daring skydiver falls for 8 s before pulling his parachute. How fast will the skydiver be moving when he pulls his chute?

11. Jumping into his car, Nichael Bluth hits the gas. The car accelerates for 5 s before reaching a top speed of 11.2 m/s. What is the acceleration of the car?

12. The fastest land animal is the cheetah which can travel at 29 m/s. If the cheetah reaches that top speed in 3 s, what is the acceleration of the cheetah?

13. The fastest bird on earth is the peregrine falcon which can fly at 108 m/s. If the acceleration of the bird is 12 m/s/s, how long will it take the falcon to reach its top speed?

14. A sailfish takes 5 s to reach its top speed when starting from rest. If the acceleration of the sailfish is 6 m/s/s, what is its top speed?