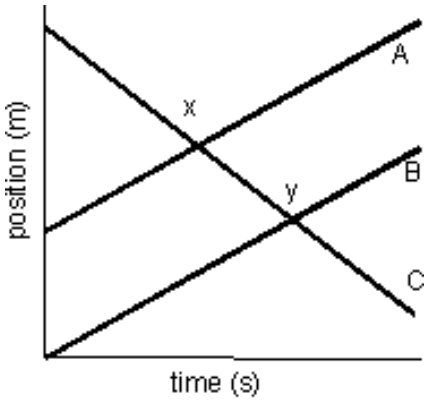
UNIT 1: DESCRIBING MOTION PRACTICE

1. The position-time graph on the right shows the motion of three different pedestrians walking along a sidewalk, creatively named A, B and C.

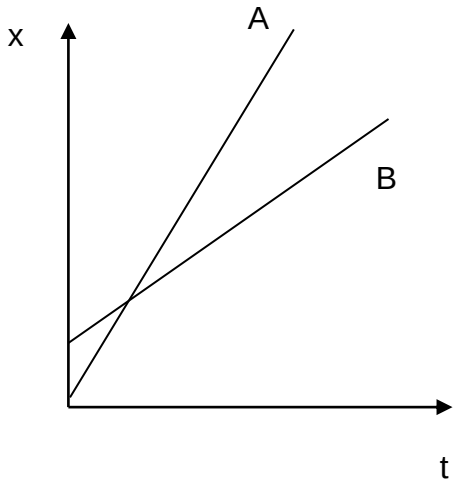


a) Compare the starting positions for A, B, and C.

b) Compare the speeds for A, B, and C. Compare the velocities for A, B, and C.

c) Explain what crossings x and y (intersections) represent.

2. The position-time graph on the right shows the motion of two cars.

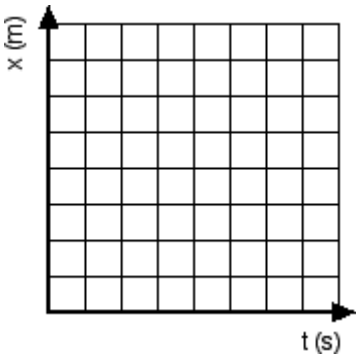


a) Compare the starting positions for A and B.

b) Compare the velocities for A and B.

3. Laura, roller skating down a marked sidewalk, was observed to be at the following positions at the times listed below:

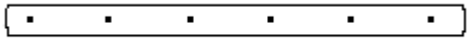
t (s)	x (m)
0.0	10.0
1.0	12.0
2.0	14.0
5.0	20.0
8.0	26.0
10.0	30.0

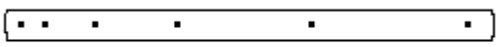


a) Plot a position vs. time graph for the skater.

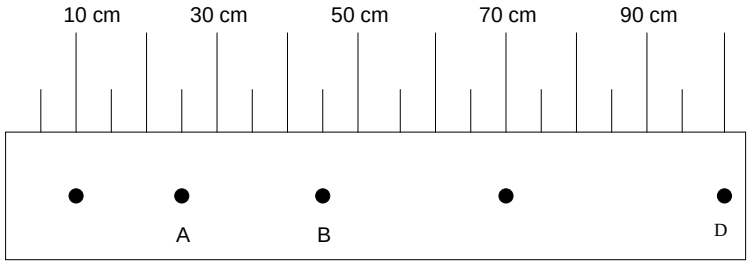
b) Was her speed constant over the entire interval? How do you know?

4. Describe the following ticker tapes…





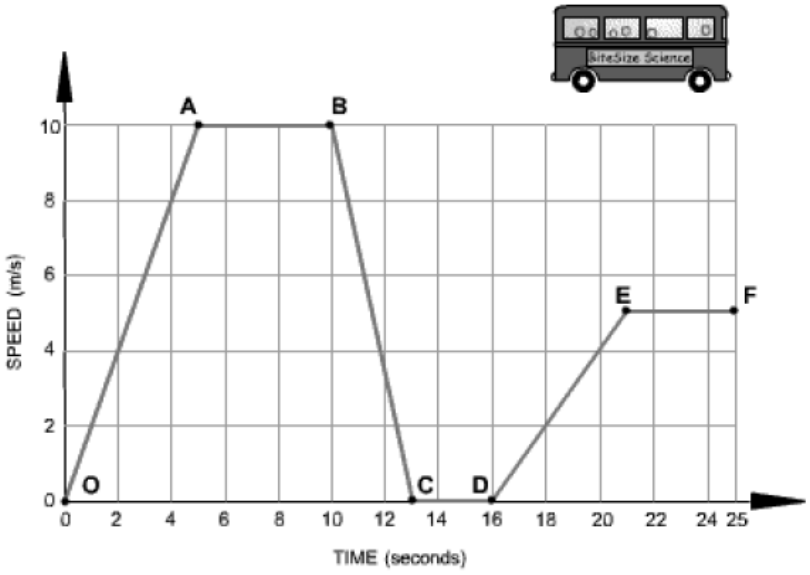
5. Another ticker tape below shows the specific distance of the dots. A dot was made every 2 seconds. What is the average speed of the object between A and D?



6. You are driving to Target, because you need Halloween gear, at a constant velocity. You then stop, park, and go in to shop. Draw a position vs. time graph for the car. For bonus points, draw the corresponding velocity vs. time graph.

7. The graph below shows how the speed of a bus changes during part of a journey Choose the correct words from the following list to describe the motion during each segment of the journey: **negative acceleration, positive acceleration, constant velocity, at rest**

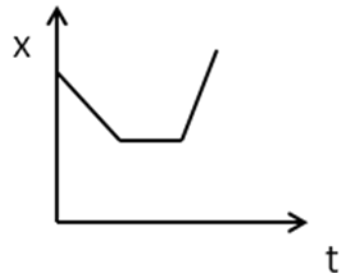
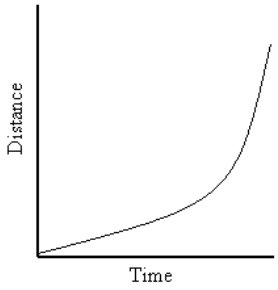
This is a
Speed vs. Time graph!!



VELOCITY

1. In one-half hour, a bicyclist traveled 20 kilometers. What was the bicyclist's average speed?

2. When would a landslide that is traveling 112 m/min hit Seattle that is 15000 m away?

<table>
<tr><th>Graphs</th><th>Written Description</th></tr>
<tr><td> 
</td><td></td></tr>
<tr><td>Construct v vs. t graph:</td><td>Positive constant velocity
Stopped</td></tr>
<tr><td>Construct x vs. t graph:</td><td>A car moves forward, then reverses direction and moves backward –
Car is making a U-turn</td></tr>
<tr><td> 
</td><td></td></tr>
<tr><td>x vs t graph</td><td>v vs t graph</td><td>Stopped
Negative constant velocity
Positive constant velocity faster
Stopped</td></tr>
</table>

ACCELERATION

1. A car rolling down a ramp starts with a speed of 50 cm/sec. The car keeps rolling and 0.5 seconds later the speed is 150 cm/sec. Calculate the acceleration of the car.

2. What is the acceleration of a bike that goes from 38 km/hr to a stop in 0.00125 hr?