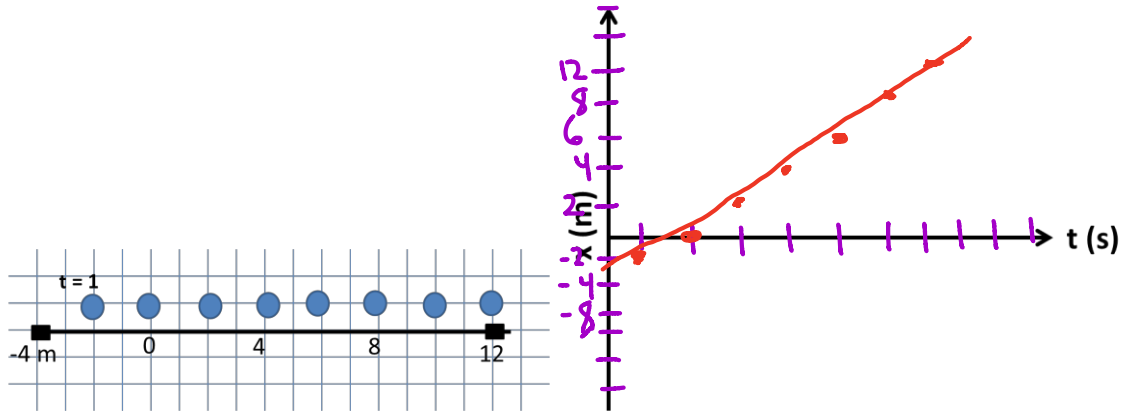


Worksheet 1.2

For each track diagram, draw the corresponding x vs. t graph and determine the sign of the displacement, velocity, and acceleration.

1.

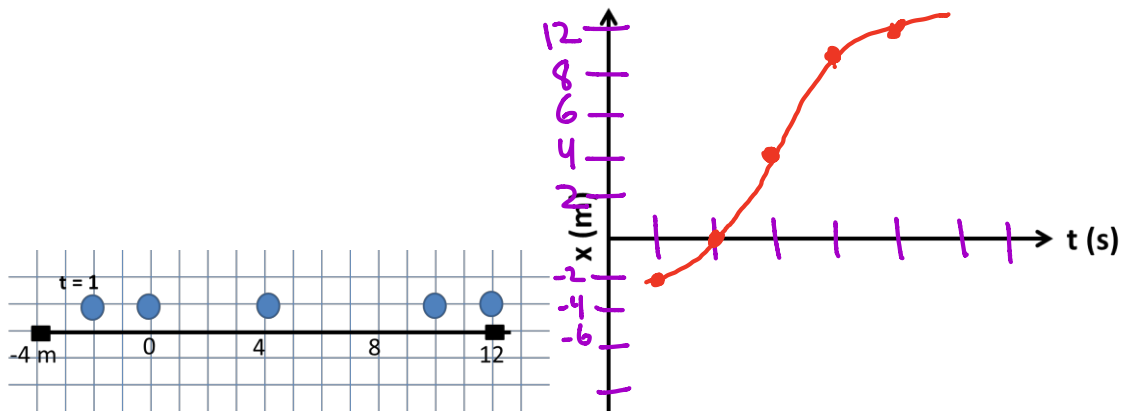


The displacement, Δx , is: **positive** zero negative (circle one)

The velocity is: **positive** zero negative (circle one)

The acceleration is: positive **zero** negative (circle one)

2.

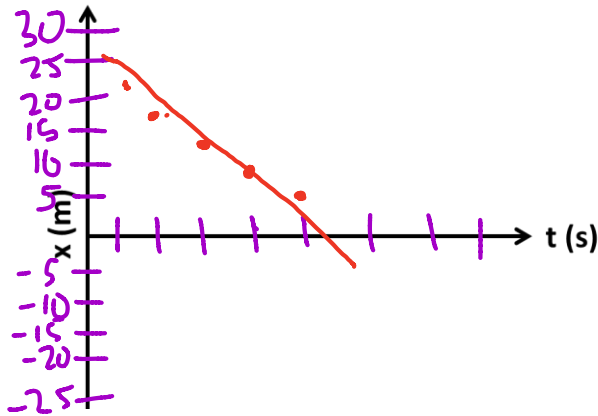
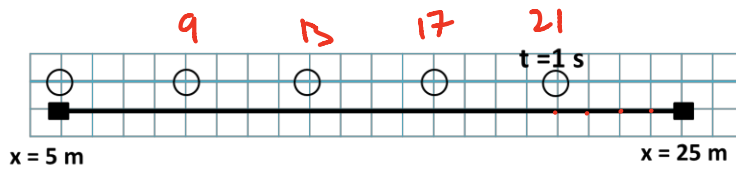


The displacement, Δx , is: **positive** zero negative (circle one)

The velocity is: **positive** zero negative (circle one)

The acceleration is: **positive** zero **negative** (circle one)

3.

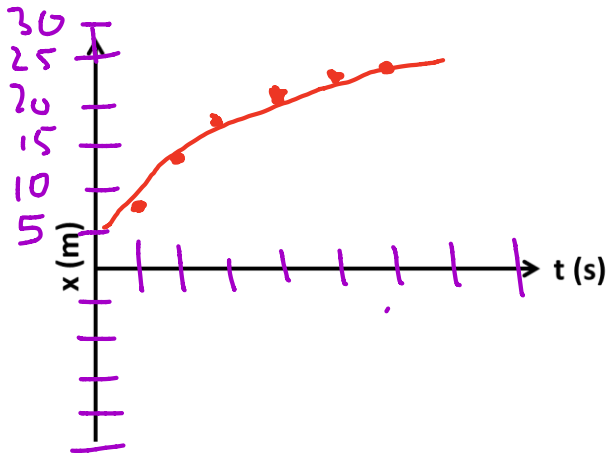
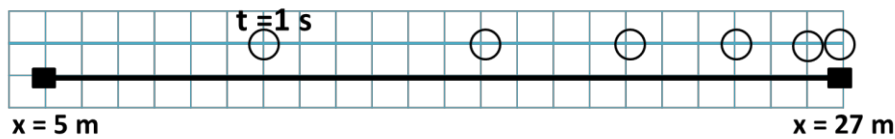


The displacement, Δx , is: positive zero **negative** (circle one)

The velocity is: positive zero **negative** (circle one)

The acceleration is: positive **zero** negative (circle one)

4.

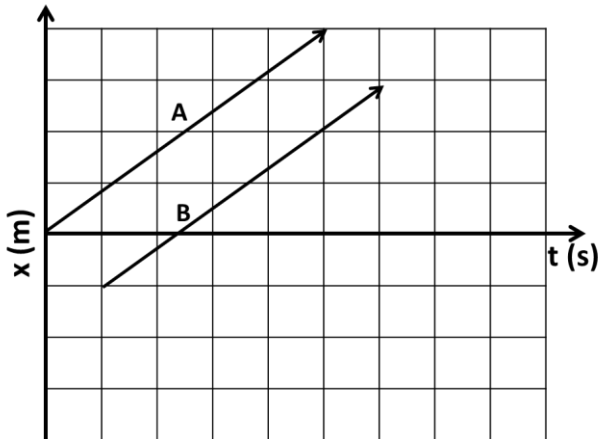


The displacement, Δx , is: **positive** zero negative (circle one)

The velocity is: **positive** zero negative (circle one)

The acceleration is: positive zero **negative** (circle one)

5.



In the diagram above, two men are racing Segways though Golden Gate Park. The graph above represents their positions across a range of times.

How many seconds behind Man A is Man B?

~2.5 sec

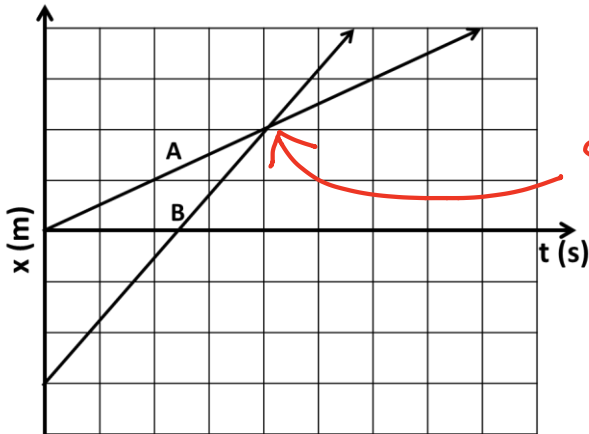
How do their velocities compare?

Same - Same slope

Will Man B ever catch Man A?

NO

6.



Same place @ same time

The graph above represents a snapshot of two marathon runners competing in a race. At what time point does runner B pass runner A?

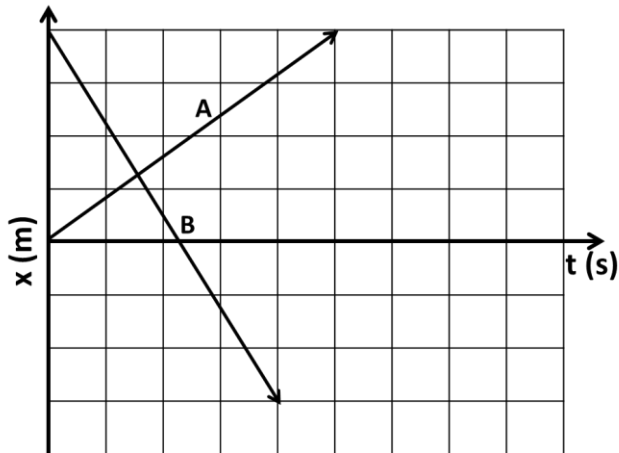
4s

What are the two runners' approximate velocities?

A: slope = $\frac{1}{2}$, velocity = 0.5 m/s

B: slope = $\frac{5}{4}$, velocity = 1.25 m/s

7.



The graph above represents two cars going in opposite directions on a freeway. At what point in space and time do the two cars pass each other? $x = 1.25\text{m}$
Which car is traveling at a higher speed?

$$\begin{aligned} B's \text{ velocity} &= -7\text{m}/4\text{s} \\ A's \text{ velocity} &= \frac{4\text{m}}{5\text{s}} \\ \text{Speed} &= |v| \\ 7/4\text{m/s} &> 4/5\text{m/s} \\ \text{So B is traveling faster than A.} \end{aligned}$$