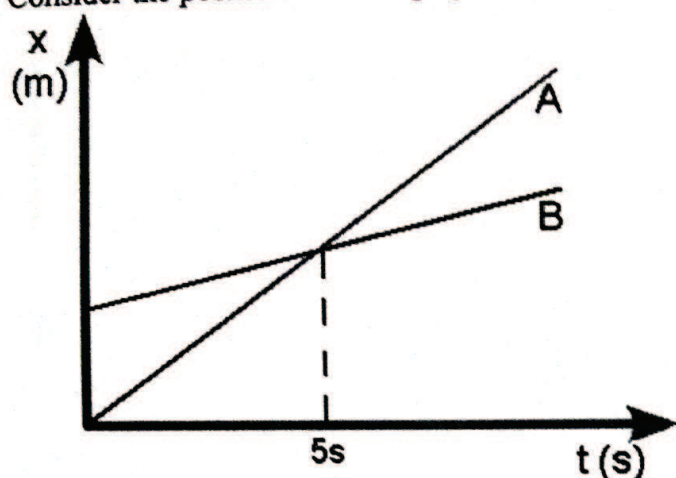


## Worksheet 2

1. Consider the position vs. time graph below for cyclists A and B.



- a. Do the cyclists start at the same point? How do you know? If not, which is ahead?

They start at different positions, we know this because they have different y-intercepts.  
Cyclist B is ahead at the start.

- b. At  $t = 7s$ , which cyclist is ahead? How do you know?

Cyclist A is ahead @ 7s she has a greater x-position (y axis)

- c. Which cyclist is travelling faster at  $t = 3s$ ? How do you know?

Cyclist A is faster @ 3s because her line has a steeper slope.

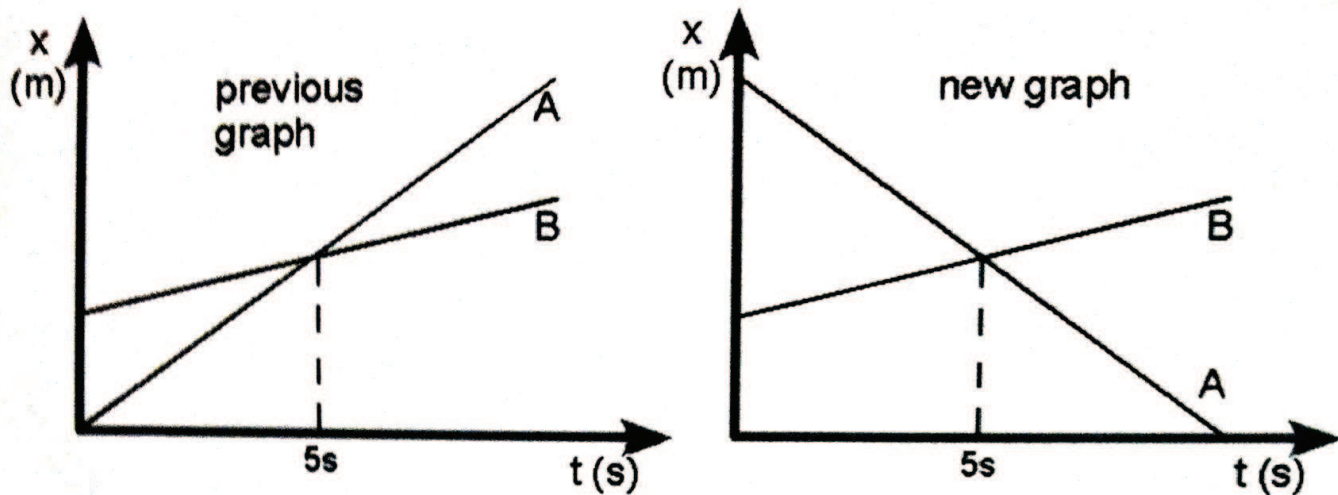
- d. Are their velocities equal at any time? How do you know?

Their velocities are never equal because their slopes are never equal.

- e. What is happening at the intersection of lines A and B?

They have the same x-position at the same time.

2. Consider the new position vs. time graph below for cyclists A and B.



- a. How does the motion of the cyclist A in the new graph compare to that of A in the previous graph from page one?

Cyclist A is now moving in the opposite direction

- b. How does the motion of cyclist B in the new graph compare to that of B in the previous graph?

Cyclist B's motion does not change.

- c. Which cyclist has the greater speed? How do you know?

Cyclist A has the greatest speed (same speed for both graphs). The steepness of slope for A is greater than that of B.

- d. Describe what is happening at the intersection of lines A and B.

They have the same  $x$ -position at the same time.

- e. Which cyclist traveled a greater distance during the first 5 seconds? How do you know?

Cyclist A on the new graph travelled the greatest distance in 5s. Cyclist A has the greatest change in position ( $\Delta x$  position or  $\Delta y$  axis) during that time.