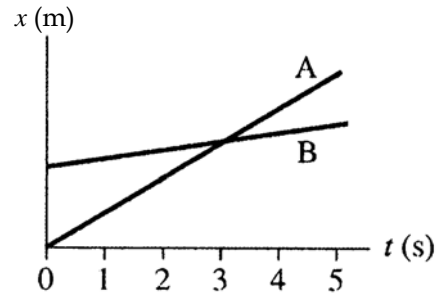


1. The **position vs. time** graphs for two particles A and B traveling in straight lines in the same direction are shown. For each question below, **explain your reasoning**. Your response should address the connections between position, displacement, velocity, and acceleration on a position vs. time graph.



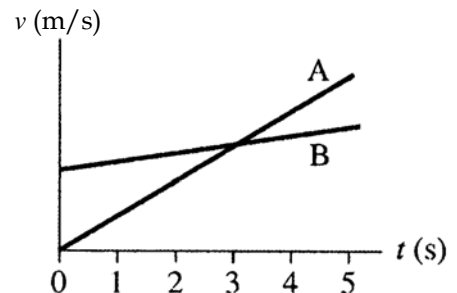
a) At  $t = 3$  s, which particle is **further ahead**?

b) Between 0 s and 3 s, which particle **traveled the largest distance**?

c) At  $t = 3$  s, which particle has the **larger speed**?

d) At  $t = 3$  s, which particle has the **larger acceleration**?

2. The **velocity vs. time** graphs for two particles A and B traveling in straight lines in the same direction are shown. For each question below, **explain your reasoning**. Your response should address the connections between velocity, acceleration, displacement and position on a velocity vs. time graph.



a) At  $t = 3$  s, which particle has the **larger speed**?

b) At  $t = 3$  s, which particle has the **larger acceleration**?

c) Between 0 s and 3 s, which particle **traveled the largest distance**?

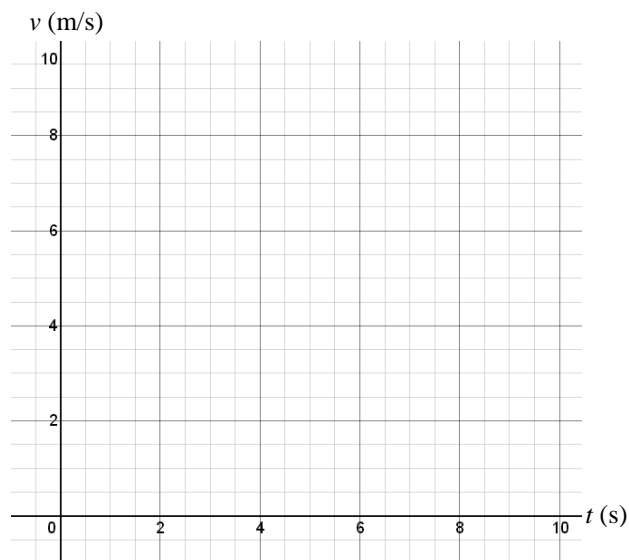
d) At  $t = 3$  s, which particle is **further ahead**?

3. You can choose between two different shops to get custom tee-shirts for your event. Tees-R-U's charges a base fee of \$20 plus \$5 per shirt. Smar-Tees charges a base fee of \$60 plus \$3 per shirt. How many tee-shirts you would need to order for Smar-Tees to be the preferable shop?

4. An object moving in a straight line with constant acceleration was determined to be moving at 10 m/s at 4 s and at 2 m/s at 8 s.

a) Determine the object's acceleration.

b) Determine the object's displacement between 4 s and 8 s.



c) Assuming the object was always moving with the same constant acceleration, determine its speed at 0 s.