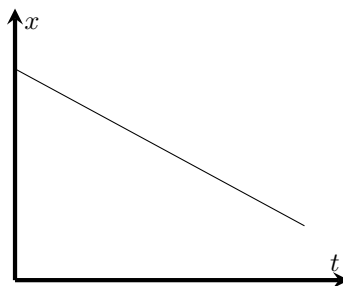
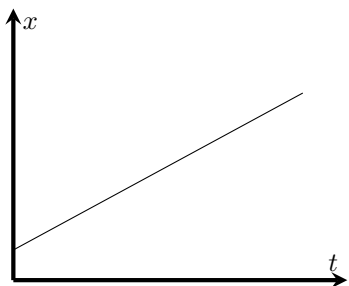
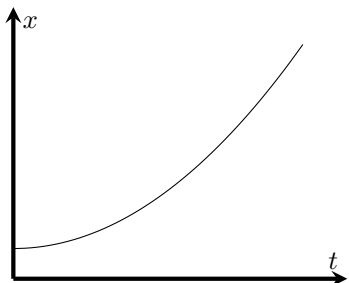


Investigating Graphs of Motion

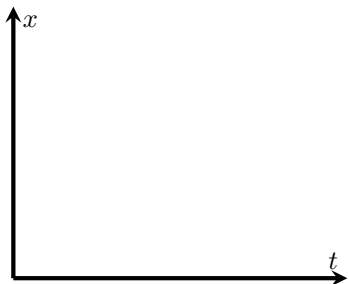
1. One of the following objects is moving forward. The other is moving backward. Which is which? Explain!!



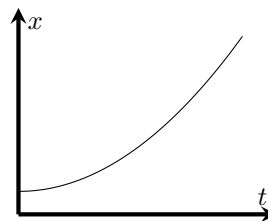
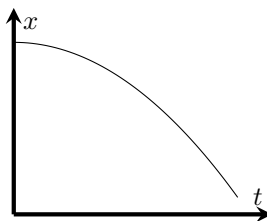
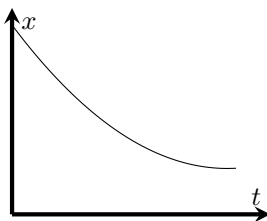
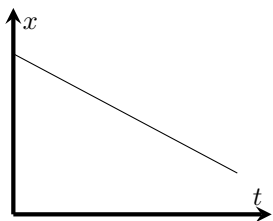
2. We found out in the lab that the slope of the position graph gives you the velocity. Use the concept of slope to explain why this object is speeding up.



3. Sketch the graph of an object that is moving forward and slowing down. Explain!!



4. For each of the following graphs, it is sufficient to simply say whether the object is moving **forward** or **backward** and whether it is **speeding up**, **slowing down**, or **maintaining a constant speed**.

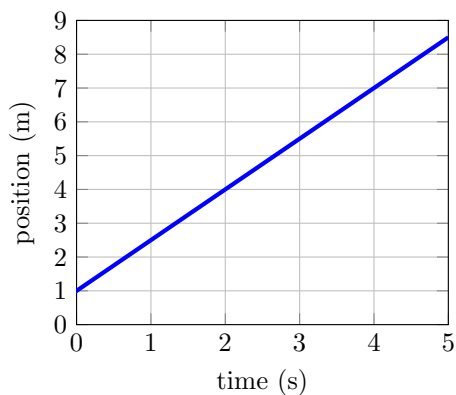


Name: _____

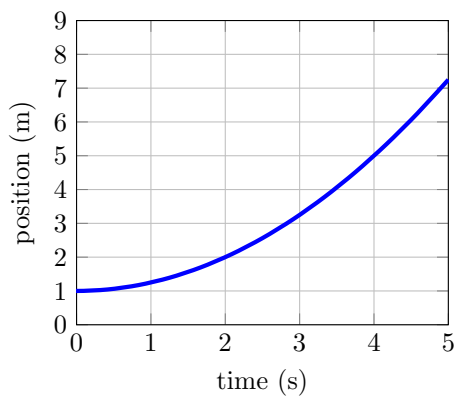
Date: _____

Period: _____

5. A graph of the motion of a tram at the airport is shown below. What is the tram's velocity?

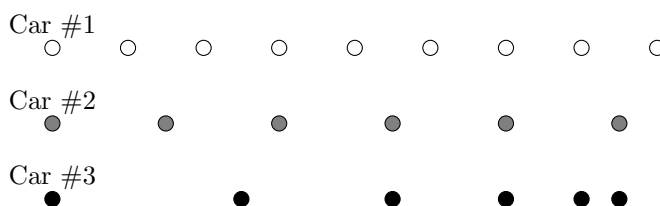


6. Below is the graph of a cart's motion.

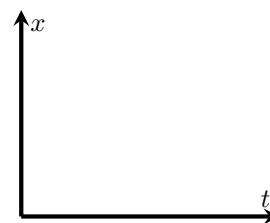
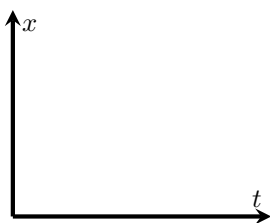
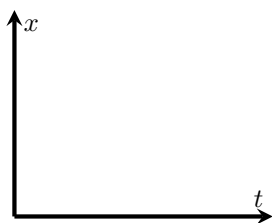


- Estimate the cart's *instantaneous velocity* at $t = 1$ s.
- Estimate the cart's *instantaneous velocity* at $t = 3$ s.
- Use these two measurements to estimate its average acceleration of the cart.

7. Consider the motion maps of the cars below. All of the cars are moving forward.



- Compare and contrast the motion of Cars #1 and #2.
- What is happening to Car #3?
- Sketch graphs of the motion of each of the cars.



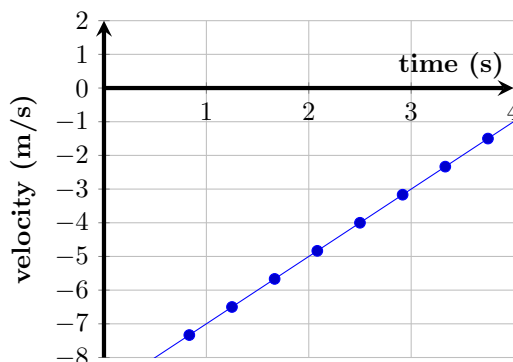
Name:

Date:

Period:

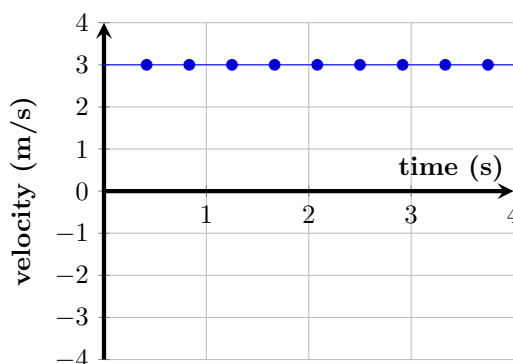
8. For each of the following graphs, answer the accompanying questions.

(a) Consider this graph and answer the questions



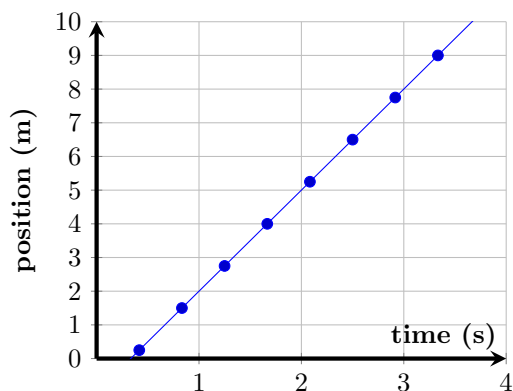
- The object is moving
☐ forward ☐ backward
- The object is
☐ speeding up ☐ slowing down
☐ moving at a constant speed
- Calculate the velocity (if possible).
- Calculate the acceleration.

(b) Consider this graph and answer the questions



- The object is moving
☐ forward ☐ backward
- The object is
☐ speeding up ☐ slowing down
☐ moving at a constant speed
- Calculate the velocity (if possible).
- Calculate the acceleration.

(c) Be careful! This is a *position* graph.



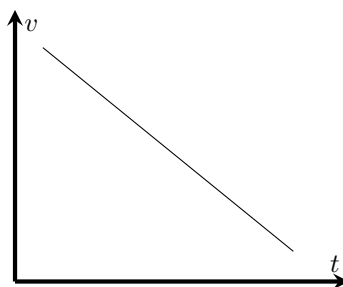
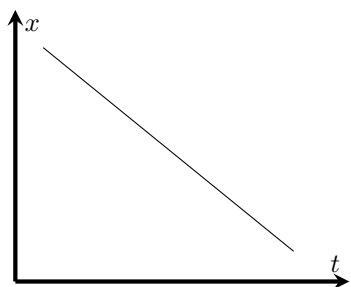
- The object is moving
☐ forward ☐ backward
- The object is
☐ speeding up ☐ slowing down
☐ moving at a constant speed
- Calculate the velocity (if possible).
- Calculate the acceleration.

Name: _____

Date: _____

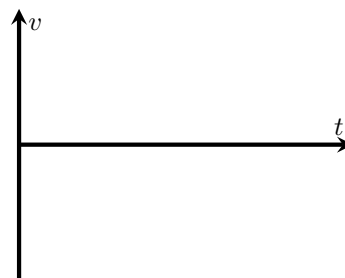
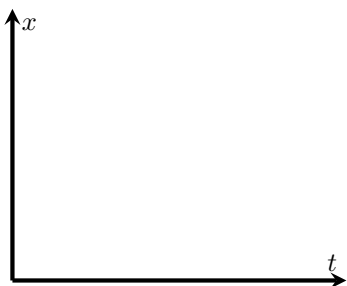
Period: _____

9. What is the difference between the motion of these two objects?

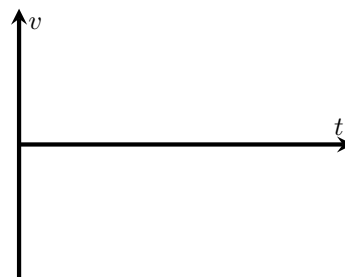
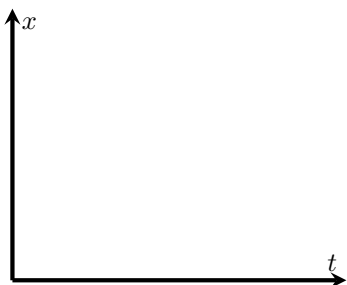


10. Draw the position and velocity graphs for each of the following situations

(a) Going backward at a constant speed.



(b) Going forward and speeding up.



(c) Going backward and speeding up.

