

# 2008 Linear Motion 7

1. A. Convert 10 mph (mi per hour) to meters per min.

3.3 ft = 1 m  
 5280 ft = 1 mi  
 12 in = 1 ft  
 I assume you know about seconds, mins, etc

2. Freefall?

- A. \_\_\_\_ A balloon is dropped.  
 B. \_\_\_\_ A bowling ball rolls off of a desk to the floor below.

3. What is a vacuum?

4. In a vacuum, which would fall faster: a brick or a leaf?

5. A person is standing on a 18 meter tall ledge. They throw a rock up into the air going 8 m/s. **It lands on the ground.**

- A. What two positions on the freefall diagram? From \_\_\_\_ to \_\_\_\_  
 B. For the following give numbers if you can. If you can't give +, -, or 0.

$v_i = \text{_____}; v_f = \text{_____}; a = \text{_____}; \Delta y = \text{_____}.$

- ~~6. A person is standing on a 18 meter tall ledge. They throw a rock up into the air going 8 m/s.~~

- ~~A. What two positions on the freefall diagram? From \_\_\_\_ to \_\_\_\_  
 B. For the following give numbers if you can. If you can't give +, -, or 0.~~

~~$v_i = \text{_____}; v_f = \text{_____}; a = \text{_____}; \Delta y = \text{_____}.$~~

7. An object is dropped 40 meters. How fast is it going just before it hits the ground?

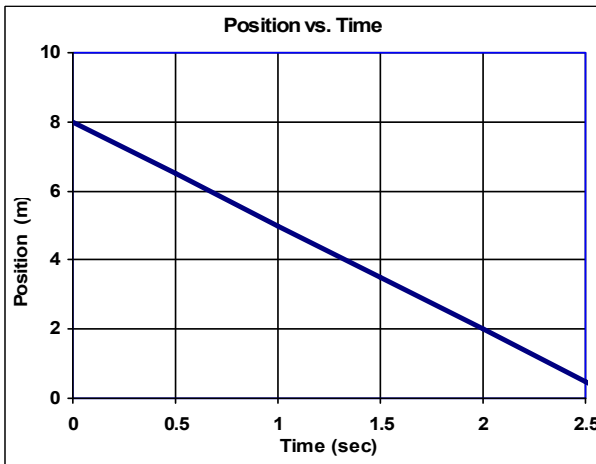
- A. What two positions on the freefall diagram? From \_\_\_\_ to \_\_\_\_

Variables:            Equation:            Solve:

8. A ball is thrown into the air going 50 m/s. If it was thrown from the ground and lands on the ground, how long was it in the air? Show all work.

9. Use the three graphs to answer the following:

- A. What is the speed of the object on the graph below?

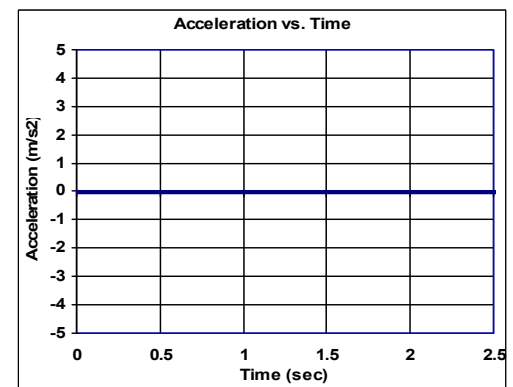
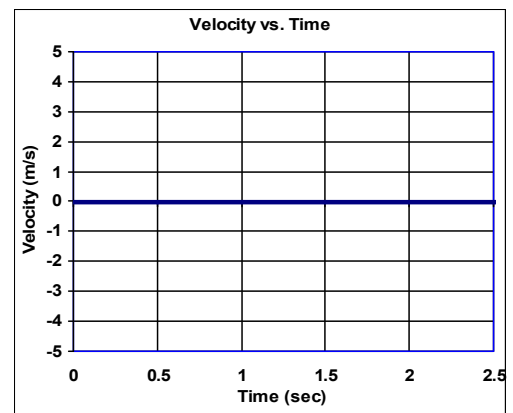


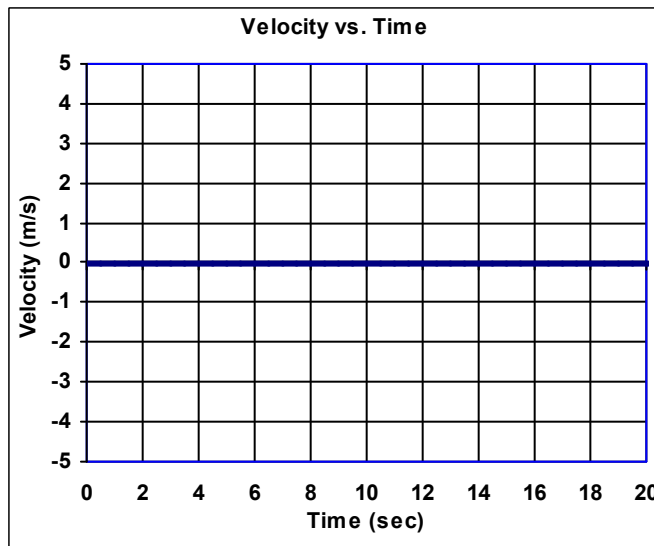
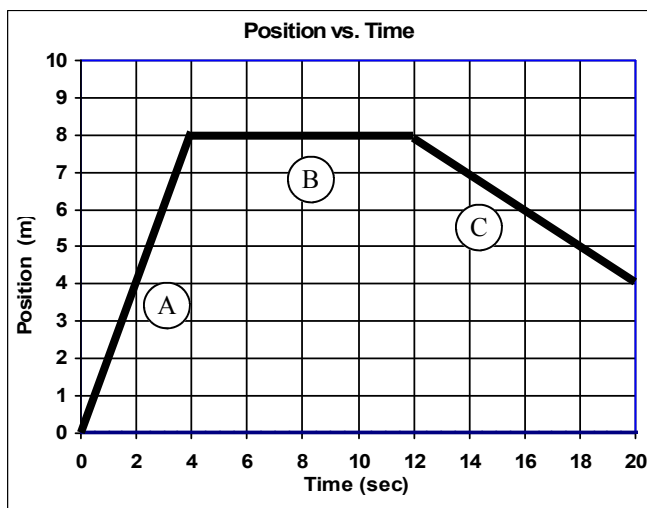
- B. Transfer this speed to the velocity vs. time graph.

- C. Does the object change velocity or is the velocity constant?

- D. What is the acceleration of the object?

- E. Graph this on the acceleration vs. time graph.





Use the "Translating Graphs" notes.

10. A. What is the speed of line A above?
  
- B. What is the speed of line B?
  
- C. What is the speed of line C?
  
11. Transfer the above speeds to the velocity vs. time graph.
  
12. A. What is the  $\Delta$  of velocity for line A?
- B. So, what is the acceleration shown on line A?
- C. Draw the acceleration graph for these three lines.

