

2008 Linear Motion 6

1. A. Convert 75 ft/sec to meters per minute.

$$3.3 \text{ ft} = 1 \text{ m}$$

$$5280 \text{ ft} = 1 \text{ mi}$$

$$12 \text{ in} = 1 \text{ ft}$$

I assume you know about seconds, mins, etc

2. An object goes around the outside of a circle of radius 3.2 meters. If it ends up back where it started:

A. What is its displacement?

B. What is the distance it traveled (you should already know the formula for the circumference of a circle)?

3. An object is moving 4 m/s to the right. If it moves 30 m to the right in 3.5 seconds, find the acceleration of the object.

Variables:

Equation:

Solve:

4. A ball is sitting on a 2.5 meter tall table. It is bumped and falls to the ground. If it's going 7m/s just before it hits the ground, what is its acceleration?

A) Since it is sitting on a table to begin with, what is its initial velocity? $V_i =$

B) Since it is falling, will its final velocity be + or -? So $V_f =$

C) How far does it fall?

D) Since the object is falling DOWN, is this distance positive or negative?

E) So, what is the displacement of the ball? $\Delta y =$ _____

F) What are you looking for?

G) Use the above questions to set up the variables, equation, and solve.

Variables:

Equation:

Solve:

5. Three students measure a 215 g object. The numbers they read are 225 g; 235 g; and 205 g.

A) Was the measuring device accurate?

B) Was the measuring device precise?

C) Should they worry about calibrating the device?

6. A. Convert 350 liters to kiloliters.

B. Convert 3,500 μm to cm.

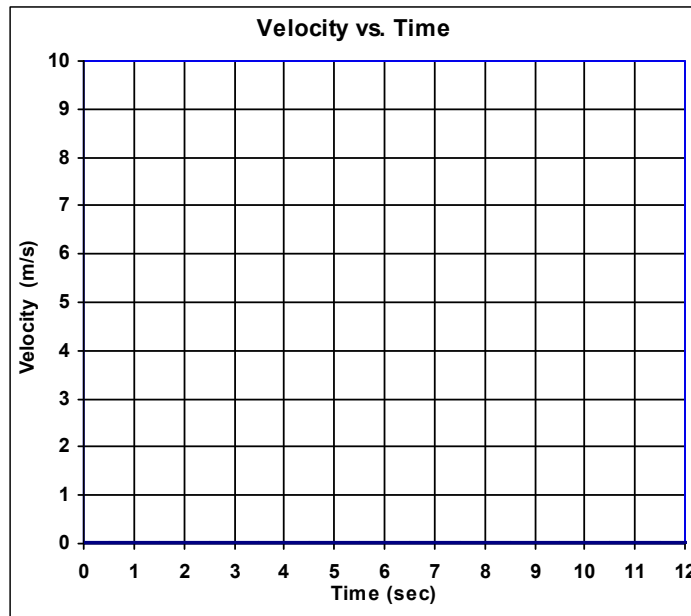
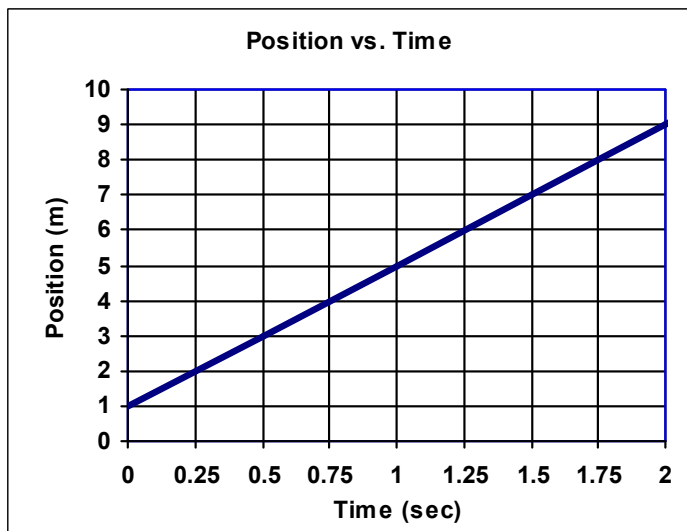
C. Convert 250 cm to meters.

7. An object moves 460 cm in 5 seconds.

A. What are the standard units for velocity or speed?

B. Making sure you are using standard units, calculate the speed of the object.

8. If an object is moving to the right and slowing down, is its acceleration + or -?



9. A. Write the linear equation for the object above.

- B. Where is it after 6.2 seconds?

- C. What is the velocity of this object?

- D. What is the velocity of this object at 2 seconds?

- E. Draw the velocity vs. time graph for this object on the second graph.

- F. Does the velocity ever change for the object?

- G. So, what is the acceleration of the object?

- H. Graph this motion on the acceleration vs. time graph.

10. An object is at rest and accelerates at 5 m/s^2 .
 - A. How fast is it going after 1 second?
 - B. How fast is it going after 2 seconds?
 - C. How fast is it going after 5 seconds?

