Name: _____   Date: _____

## Science 10 – Motion – Practice Test

$$v_{av} = \frac{d_2 - d_1}{t} \qquad a_{av} = \frac{v_2 - v_1}{t} \qquad v_2 = v_1 + a_{av}t \qquad v_1 = v_2 - a_{av}t$$

1. You walk 40 m east, 20 m west, 50 m east then 10 m west.
   a. What was your displacement?
   b. What was your distance?
   c. If the whole trip took you 360 s, what was your average speed?
   d. Is your speed a scalar or vector quantity? How do you know?
2. If you drive at 28 m/s for 0.5 hours, how far will you travel?
3. Use the graph to answer the questions:
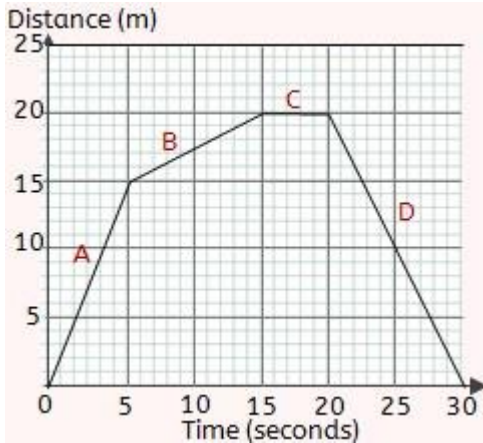
   a. How fast is the object travelling during period A?
   b. How long is the object stopped?
   c. Does the object travel faster, slower or the same speed during period D as it does in period A?
   d. What is the object's displacement?

4. Use the graph to answer the questions:
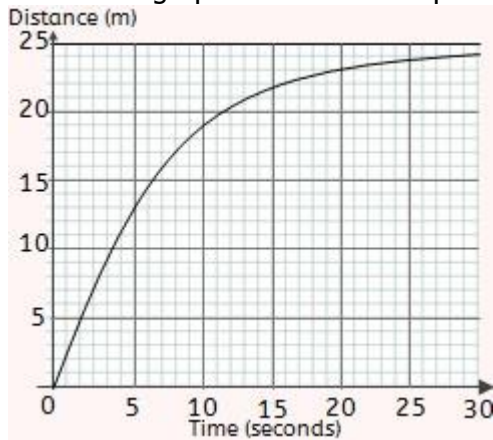
   a. Calculate the object's average speed from 0 to 10 s.
   b. Calculate the object's average speed from 20 to 30 s.
   c. Describe what is happening to this object as it moves.

5. A ball is dropped off a very tall building. Its initial speed is 0 m/s and has an acceleration of 10 m/s² down.
   a. How fast is the ball going at 5.0 s?
   b. How long does it take the ball to fall 500 m?
   c. Draw a <u>speed-time</u> graph for the motion of the ball.
6. You are pushing a heavy box along the floor. You need to push really hard to get it moving, but once it starts, it slides more easily. You then push a smaller box, and find it moves much faster when you push the same amount. Explain how <u>one</u> of Newton's laws explains what is happening in this situation.