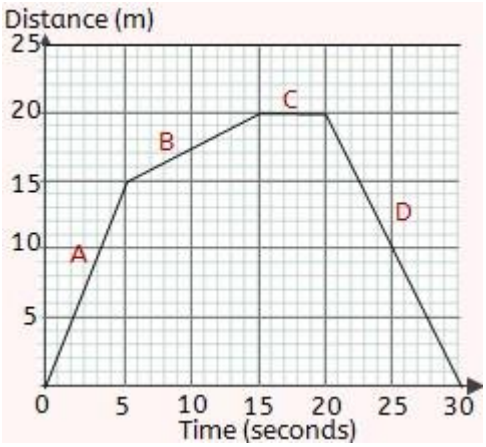
Name: _____ Date: _____

Science 10 – Motion – Practice Test

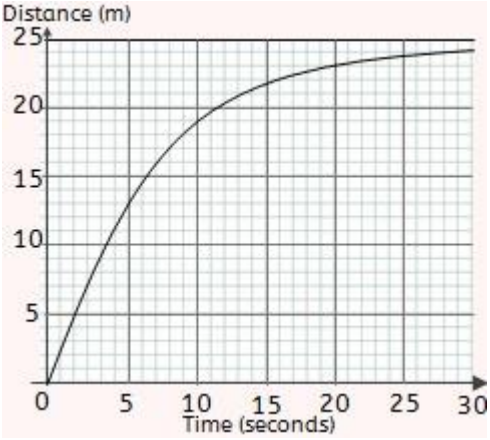
$$v_{av} = \frac{d_2 - d_1}{t} \qquad a_{av} = \frac{v_2 - v_1}{t} \qquad v_2 = v_1 + a_{av}t \qquad v_1 = v_2 - a_{av}t$$

1. You walk 40 m east, 20 m west, 50 m east then 10 m west.
    a. 60 m E
    b. 120 m
    c. 0.3 m/s
    d. Scalar because it doesn't have a direction
2. 50 400 m
3. Use the graph to answer the questions:



    a. 3 m/s
    b. 5 s
    c. Slower (2 m/s)
    d. 0 m

4. Use the graph to answer the questions:



    a. 1.9 m/s
    b. 0.1 m/s
    c. It is slowing down (negative acceleration)

5. A ball is dropped off a very tall building. Its initial speed is 0 m/s and has an acceleration of 10 m/s^2 down.
    a. 50 m/s
    b. 10 s

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c. 

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.

   Inertia – harder to start an object moving (overcome inertia) than to keep it moving

   F = ma – need smaller force to move the smaller box than the larger box, and with the same force the acceleration of the larger box will be less

   Equal and opposite force – box pushes against you with an equal force as you push on it