Physics
Unit 1 Review – Part 2

Name:_____ Block:_____

Distance vs. Displacement
1. Write a simple definition for distance.

2. Write a simple definition for displacement.

3. What is the major difference between distance and displacement?

4. If James leaves home and travels 5 m N, then 4 m W, then 6 m S, and finally 6 m E, what is his total distance and his final displacement?

Average Speed/Velocity
1. The equation for average speed is $v=\Delta x/t$. What do each of the variables represent?

2. What is the difference between speed and velocity? Which one is a vector and which is a scalar?

3. If Annabelle drives at an average speed of 60 km/hr for 4.5 hours, how far has she traveled?

Distance-Time Graphs & Velocity-Time Graphs
1. What does the slope of a straight line on a DISTANCE-time graph tell us?

2. What does the slope of a straight line on a VELOCITY-time graph tell us?

3. Make sure you spend some time reviewing the handout you received that reviews what the lines on each type of graph tell you!

Acceleration
1. Define acceleration.

2. What is the basic equation for calculating acceleration? What do each of the variables represent?

3. Francesca starts at rest and is walking at 3.5 m/s after 4 s. What is her acceleration?

Motion Maps
1. Explain each of the following parts of a motion map:
    a. A dot:

    b. Orientation of an arrow:

    c. Length of an arrow:

Free-Fall (Gravity)
1. On Earth, all things are pulled down with an acceleration of _____.
2. What characteristics of an object affect its acceleration due to gravity?

Projectile Motion
1. When an object is thrown into the air, its trajectory is a parabola. Describe the object's **speed** and **acceleration** when it is:
    a. traveling up the first side of the parabola:

    b. at the top of the parabola:

    c. traveling down the second side of the parabola:

2. There are three formulas for solving projectile problems. Write them and tell what each variable represents.
    a. Formula 1:

    b. Formula 2:

    c. Formula 3:

3. A ball rolls off of a table that is 1.5 m tall with a horizontal speed of 3 m/s. How far from the table does the ball hit the floor?

4. An apple is thrown from a tree with a horizontal speed of 8.5 m/s. 4 seconds later, it lands on the ground. How far from the tree did the apple land? What is the height of the tree?

5. If I fire a bullet horizontally at the same time I drop a bullet, which one will hit the ground first? Why?