POGIL WS (pg.2) MOD Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Motion Graphs

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

Period: \_\_\_\_\_

1. Consider the following graph of Cars A, B, and C:



 Identify each car below as A, B, or C:

1. Which cars are accelerating? (There are 2!)
2. Which car is driving at 75 km/hr at time zero seconds, and has an acceleration of 0 km/hr-s?
3. Which cars are traveling the same speed at 9 seconds?
4. Looking at the graphs below:

\_\_\_ 1) Which graph(s) show constant speed?

\_\_\_ 2) Which graph shows constant acceleration?

\_\_\_ 3) Which graph shows no motion?

 

3. Both graphs below show Car A accelerating constantly at 32 m/s2.

 Graph 1: Speed (m/s) vs. Time (s) Graph 2: Distance (m) vs. Time (s)

 

1. Find the area under the line in Graph 1. Use the formula for the area of a triangle:

Area = (1/2) X base X height = (1/2) X 5 X 160 = \_\_\_\_\_\_\_\_meters

1. How far did the car travel in 5 seconds according to Graph 2?
2. Given your answer to parts a and b, fill in the blank:

If you have a graph of speed vs. time, the area under the graph is equal to the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the car traveled.

1. Find the slope of the line in Graph 1.

Slope = $\frac{rise}{run}$ = $\frac{160}{5} $= \_\_\_\_\_\_\_ m/s2

How does the value for the slope relate to the acceleration of Car A (32 m/s2)?