Physics 200 **Name: ______________________**
Notes: Acceleration

______________________ tells you how something's position changes during one second.

______________________ tells you how something's velocity changes during one second.

Is acceleration a vector or scalar quantity?

Acceleration can happen in two fundamentally different ways:

1)

2)

Negative acceleration is also called ______________________________

Common metric units for acceleration are:

<u>The Analogous Relationship between Velocity and Acceleration:</u>

If Pam has a *velocity* of +6m/s, that means she travels 6m for every second that ticks by. Another way to say this is that, **for each passing second, Pam adds 6m to her position.**

Analogously, if Pam's *acceleration* is +6m/s/s, this means…

Velocity adds __________ each second.

Acceleration adds _________________________ each second.

Velocity is the slope of a _________ vs __________ graph.

Velocity is the slope of a _________ vs __________ graph.

<u>The acceleration formula:</u>

Velocity describes a change in position over a time interval. Acceleration describes a change in velocity over a time interval.

$\mathbf{a}_{\mathbf{average}}$ =

Acceleration Formula Practice Problems:

1. Suppose your velocity is 2m/s. One second later, your velocity is 6m/s. What is your average acceleration over this time period?

2. When your watch reads 8:01:32 AM, your velocity is 6m/s. At 8:01:40 AM (on the same day), your velocity is 2m/s. What is your average acceleration over this time period?

Motion Graphs:

Each row of graphs below comprises a position vs. time graph, a velocity vs. time graph, and an acceleration vs. time graph. Every graph in a row conveys the same motion. For each row, use the one completed graph to fill in the incomplete graphs with reasonable curves. Some rows will have a wider variety of possible answers. **Assume that all acceleration is constant.**