Name: _____ **Hour:**_____

WebQuest Student Worksheet:

(http://www.MrsClayPhysics.weebly.com)

Part I:

A. Speedometers in a car show: _____

What is the difference between Instantaneous speed and Average speed?

_____

_____

_____

The formula for average speed is: _____

Suppose that during your trip to school, you traveled a distance of 10 miles and the trip lasted 0.33 hours (20 minutes) What was your average speed? (Show work):

Answer: _____

B. Define Velocity: _____

What is the difference between speed and velocity?

_____

_____

_____

Velocity is a vector quantity. As such, velocity is _____ *aware*. When evaluating the velocity of an object, one must keep track of _____.

Speed is a _____ _____ and does ____ *keep track of* _____; velocity is a _____ _____ and is _____ _____.

Velocity is speed with a _____.

The formula for average velocity is: _____

C. Define Acceleration: _____

_____

Anytime an object's velocity is changing, the object is said to be _____; it has an _____.

Acceleration has to do with changing how fast an object is _____. An object is accelerating if it is changing its _____. Therefore, if an object is not changing its velocity, then the object is not _____. An object with a constant _____ is not accelerating.

Since acceleration is the ratio of $\triangle v/t$, it's units would be velocity units per _____ _____.

Typical acceleration units include the following Units: ____/____/____ or ____/____/____ or ____/____/____.

When an object is slowing down, the acceleration is in the opposite direction as the _____. Thus, this object has a _____ _____.

The formula for average acceleration is:

Solve practice problem A from the bottom of the page here (show your work):

Answer: _____

Part II:

A. INTERPRETING GRAPHS OF POSITION VS. TIME:

The motion described as a constant, positive velocity results in a line of _____ and _____ slope when plotted as a position-time graph.

The motion described as a changing, positive velocity results in a line of _____ and _____ slope when plotted as a position-time graph.

If the velocity is constant, then the slope is _____ (i.e., a straight line). If the velocity is changing, then the slope is _____(i.e., a curved line).

If the slope increases, what happens to the velocity? _____

On your own: If the graph shows a straight line, you can conclude the velocity is constant so the acceleration is _____. If the graph shows a curved line, you can conclude the velocity is changing so the acceleration is _____.

Describe the relationship between the slope of a position vs. time graph and velocity: _____

_____

_____

Name: _____ Hour:_____

B. The slope of the line on a position versus time graph is equal to the _____ of the object.

Describe how to calculate velocity of a moving object from two points on a position-time graph:

The slope equation says _____

_____

_____

- _____
- _____
- _____
- _____

What is the formula for calculating slope? _____

Check your understanding problem answer: (show work)

C. The slope of a velocity vs. time graph tells me _____

Draw and label a graph of velocity vs. time for an object with constant velocity and one that has changing velocity:

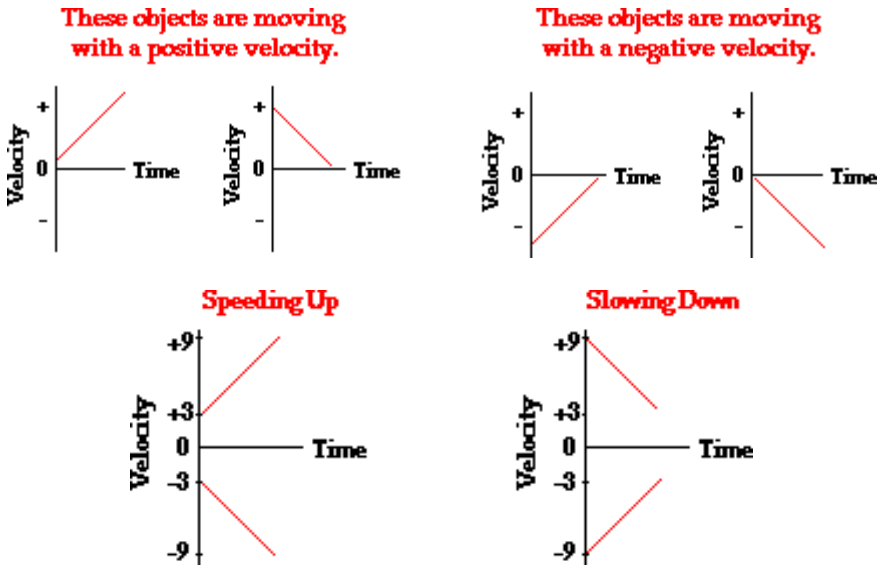
Constant Velocity **Changing Velocity**

What is this a graph of? _____

How do you know from a velocity vs. time graph whether an object has positive or negative acceleration? _____

If the acceleration is zero, then the slope is ____ (i.e., a _____ line). If the acceleration is positive, then the slope is _____ (i.e., an _____ sloping line). If the acceleration is negative, then the slope is _____ (i.e., a downward _____ line).

Review these graphs then answer the "Check your understanding" question at the bottom of the page.



Check your understanding answer: _____

Explain your answer:

Part III.

A. Define Freefall: _____

_____

Free-falling objects do not encounter _____.

What is the acceleration of an object in free fall (on earth _____

_____

B. What is the object doing? _____

Solve problem for acceleration due to gravity of object in free fall on mars here (show your work):

Answer: _____