Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hr \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Speed and Velocity Notes**

**Speed**

 Speed is the \_\_\_\_\_\_\_ at which an object moves across a \_\_\_\_\_\_\_\_\_\_\_\_ per unit of \_\_\_\_\_\_\_\_.

**Speed = Distance /Time**

The / sign means \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ or per.

The units in which speed is measured include any units of \_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_ divided by any unit of \_\_\_\_\_\_\_\_\_\_\_.

**Units of speed**

Examples of units of speed include:

 -miles/hour

 -meters/second

 -feet/second

 -kilometers/hour

Your textbook will usually use the units of \_\_\_\_\_\_\_\_\_\_\_\_ per \_\_\_\_\_\_\_\_\_\_\_ (\_\_\_ /\_\_\_) for speed.

**If you ride a bike a distance of 5 meters in 1 second, what is your speed?**

**If you ride a bike a distance of 10 meters in 2 seconds, what is your speed?**

**If you ride a bike a distance of 100 meters in 20 seconds, what is your speed?**

***Instantaneous Speed*-** The speed at a given \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in \_\_\_\_\_\_\_\_\_.

Example: You are driving down the road. Your speedometer reads 25 mph. 25 mph is your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The speed you see on a car \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ speed.

***Average speed –***\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ covered/\_\_\_\_\_\_\_\_\_\_ interval

Average speed does *not* tell you anything about your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_speed.

Example: If you travel 240 km in 4 hours, your \_\_\_\_\_\_\_\_\_\_\_\_\_ speed is 240 km/4 hr = 60 km/hr

Example:

You are driving 200 km to a concert in Madison. At one point you look at your speedometer and see that it reads 100 km/hr. You arrive at the concert in 2 hours.

-What was your average speed?

-What was your instantaneous speed at one point on your trip?

**Speed vs. Velocity**

*\_\_\_\_\_\_\_\_\_\_\_\_* is a description of how fast an object moves, \_\_\_\_\_\_\_\_ covered in an interval of time.

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_* is a description of how \_\_\_\_\_\_\_\_ *and in what \_\_\_\_\_\_\_\_\_\_\_* an object moves.

 Velocity is \_\_\_\_\_\_\_\_\_\_\_\_ with \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Examples of Velocity Measurements:**

-50 km/hr north

-20 ft/s left

-45 m/s southeast (SE)

**Does a car speedometer read speed or velocity? How do you know?**

**Constant Velocity**

Constant velocity requires constant \_\_\_\_\_\_\_\_\_\_\_ AND constant \_\_\_\_\_\_\_\_\_\_\_\_\_.

If an object is moving in a \_\_\_\_\_\_\_\_\_\_\_\_\_ path at a \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_, it is NOT moving with constant velocity because its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

An object whose direction or speed is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is moving with a ***changing velocity.***

***Homework:***

 ***Read Sec. 2.2 & 2.3 pg.11-14***

***Do problems 2-8 on page 25 and problem 26 on page 26***