Worksheet kinematics Team: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**1.** Circle all of the words which are measured in base metric units derived from nature. Do not circle the words that are measured in some combination of base metric units derived from nature.

speed time acceleration displacement distance velocity

**2.** What is the difference between speed and velocity?

**3.** What is the difference between total distance traveled and displacement?

**4.** A giraffe is decelerating at a rate of -0.086m/s2.

After 70 seconds have passed, the giraffe comes to a halt.

**(a)** What was the giraffe's initial velocity?

**(b)** What distance did the giraffe cover during his travel?

**5.** The position of an apple rolling to and fro across a hilly field is given as a function with respect to time such as $x=0.1t-2.5t^{2}+.8t^{3}$

**(a)** If velocity is the first derivative of position with respect to time, what would the function for the apple's velocity look like?

**(b)** If acceleration is the second derivative of position with respect to time, what would the function for the apple's acceleration look like?

**(c)** At what time would the apple's position be greatest?

**(d)** At what time would the apple's velocity be greatest?