Biology 4605/7220 Quiz #1b NAME_____Key_____
13 September 2005

1. Name a quantity of interest to you that has dimensions of M/T. In the spaces below provide a complete five-part definition of the quantity (name, symbol, procedural statement, numbers, units).

| NAME | SYMBOL | TYPICAL VALUES | SCALE (typical units) |
|---|---|---|---|
| | K | | |

Procedural statement (you may have to invent this)

[This should be clear enough so that another investigator could make comparable measurements]

$$sum(X) = \sum_{i=1}^{n} X_i = X_1 + X_2 + \cdots + X_n$$ n is number of observations (it has no units)

$$mean(X) = \bar{X} = \frac{1}{n}\sum^{n} X$$ $$variance(X) = s^2 = \frac{1}{n-1}\sum\left((X - \bar{X})\right)^2$$

coefficient of dispersion $$cd(X) = \frac{variance(X)}{mean(X)}$$

2. Substitute the symbol for your quantity within the parentheses in the following expressions, and fill in the blanks.

*sum*( ) has units of _____K___

*mean*( ) has units of _____K_____

*cd*( ) has units of _____K_____

3a. The median is defined as a value such that half the observations are above and half are below. Report the mean and median values of the following quantity (don't forget units).

E = [ 65 5 5 10 15 ] Joules *mean*(E) = __100/5=20_____

*median*(E) = _____10_____

3b. State which is greater (mean or median) _____mean_____

3c. Explain why. The mean exceeds the median because the mean is influenced by an extreme value, 65.