EE322 Fall 2008 Problem Set 02 (PS02) - Solutions.

1. Tell whether each of the following is discrete or continuous in time, and whether it is discrete or continuous in value.
   a. Measuring your temperature with a mercury thermometer once each day for 7 days, at 0800.
   b. Keeping track of the number of midshipmen in your class (2010) over the course of a year.
   c. Continuously recording the speed (to the nearest mph) of a car as you drive from Annapolis to Baltimore.
   d. Recording the score of the Navy-Notre Dame football game every minute of play.

2. Is the spoken word (as you hear it) analog or digital? Why?

1.(a) mercury thermometer provides a continuous valued height of mercury.
- continuous value / discrete time

(b) number of midshipman is discrete valued, but the number of mids over a year has a value for all values of time.
- discrete value / continuous time

(c) to the nearest mph implies discrete value.
- discrete value / continuous time

(d) "every minute" is discrete time. The score is discrete.
- discrete value / discrete time.

2. Analog - sound is based on changes in air pressure, a natural phenomenon, which is continuous in time / continuous in value.