1. Here are 20 measurements (listed from least to greatest).

$$1.1, 2.0, 2.3, 2.9, 4.0, 4.7, 5.0, 5.1, 5.3, 5.3,$$

$$5.3, 5.3, 6.1, 6.4, 6.7, 6.9, 6.9, 7.2, 8.0, 8.3$$

(a) (8 points) Create a relative frequency histogram below using 6 classes of width 1.2. The first class should be $[1.1, 2.3)$.

(b) (4 points) What proportion of the measurements are greater than or equal to 6.0?

(c) (4 points) How would you best describe the distribution: right-skewed, left-skewed, or symmetric?

2. You are given a sample of $n = 7$ measurements: 8, 7, 10, 13, 8, 13, 11

   (a) (4 points) What is the median, m?

   (b) (4 points) What is the mean, $\bar{x}$?

   (c) (4 points) What is/are the mode/modes, M?

   (d) (4 points) What is the variance, s^2?

   (e) (4 points) What is the standard deviation, s?

3. (4 points) Suppose a sample of 50 measurements are collected with mean $\bar{x} = 35$ and standard deviation $s = 8$. According to Tchebysheff's theorem, at least what proportion of measurements lie between 11 and 59 (i.e. within 3 standard deviations of the mean)?

4. A Sample space S consists of five simple events with the following probabilities.

$$P(E_1) = P(E_2) = .15 \qquad P(E_3) = .4 \qquad P(E_4) = .1 \qquad P(E_5) = ?$$

   (a) (4 points) Find the probability of the simple events E_5.

   (b) (4 points) Find the probabilities for the following two events.

$$A = \{E_1, E_3, E_4\} \qquad B = \{E_2, E_3\}$$

   (c) (4 points) List the simple events that are either in event A or event B or both.

   (d) (4 points) List the simple events that are in both event A and event B.