MATH 21-01 (Introductory Statistics), HW2 (100 points). Due: 02/03/2016 in class.

Not from textbook (50 pts)

(A - 50 pts) Suppose the following data represents the number of hours worked per week at a large company by a sample of workers:

hrs	11	14	17	20	23	26	29	32	35	38	41	44	47	50	53
freq	2	1	2	1	6	7	11	12	12	17	19	9	0	0	1

- Pick suitable class limits and class width and make a frequency distribution table, then use it to draw a labeled histogram. Comment on the rough shape of the distribution.

- Calculate the sample mean $\bar{x}$.

- Calculate the sample variance s^2 and the standard deviation s. How would these change if the population formulas were used?

- From the data, calculate the percentage of measurements lying inside the two intervals $(\bar{x} - s, \bar{x} + s)$ and $(\bar{x} - 2s, \bar{x} + 2s)$.

- How do the numbers in the above question compare to the results of Chebyshev's theorem? How do these compare to the Empirical Rule if we were to assume that the data were approximately normal?

- Making use of R (please provide the code you've used; note that you can use R commands to initialize the above data in R more efficiently than by typing in one entry at a time), calculate the five number summary for the data and the IQR. Are there any outliers per the IQR characterization? Draw (by hand) a modified boxplot for the data. Comment on the distribution.

From textbook (50 pts)

- Section 2-3: 11,12,16

- Section 2-4: 6,7,9,11,14,16,22