Homework 12, Due W 03/21

Read Chapter 3, Chapter 13: Pages 334-336.

Problems to be turned in: Show all working. Answers without explanation will not get any credit.

1. Ex. 3.29

2. Ex. 3.30

3. Ex. 3.44

4. Ex. 3.46

5. Ex. 3.50

6. In a certain class, there was an exam out of 100. The mean score was 80. The professor picked a student at random and announced his/her score. Call it X. Assume X has Binomial distribution.
To view this as a Binomial Model, note that the exam carried 100 points, and for each point the student could either get 1 (success) or 0 (failiure). Then the student's total score, X counts the total number of successes. Assuming that the chance of success was the same for each point, X has Binomial distribution with $n = 100$ and $p = 0.8$.
Use this information to answer the following questions:

a) What is the probability that the randomly picked student got 100.

b) What is the probability that the student got an **A**? Use *Normal Approximation to Binomial* (see Page 336) to find the probability.

c) How much should the student score to be in the top 5% of the class? Again use *Normal Approximation* to find the answer.

d) Figure 1 shows the histogram of the score distribution for the class. Comment on the shape of the histogram. Is Binomial distribution a good assumption?

Figure 1