Math 21 – Practice Test Binomial/Poisson/Normal/Normality

1) Serum cholesterol levels are normally distributed with a mean of 54 mg/dl and a standard deviation of 16 mg/dl. Find the probability that a person has a serum cholesterol level between 50 mg/dl and 75 mg/dl.

2) Forty percent of the adults in a certain city hold a bachelor's or higher degree. If 10 adults from this city are selected at random, find the probability that at least 7 have a bachelor's or higher degree.

3) An elementary school nurse sees a mean of 3.5 students per day for stomach problems. Find the probability that the nurse will see at least 10 students in the next 2 days.

4) Scores on the Math 230 final exam are approximately normally distributed with a mean of 68.3 and a standard deviation of 9.2. The college decides to give an award to students whose final exam scores were in the top 3%. What is the lowest score that will receive an award? (Your answer should be a whole number.)

5) 30% of all plain M&M's are brown. If 15 plain M&M's are selected at random, find the probability that less than 7 are **NOT** brown.

6) During a typical month, a car salesman sells 7 cars. Find the probability that he sells at least 30 cars in the next 3 months.

7) Here are the number of runs scores in 12 baseball games. Are the data normally distributed? (Critical value for $n = 12$: 0.928)

16 13 4 15 8 9 9 15 7 10 11 2

All calculations must be done with StatCrunch. In addition to your answer, you must write down exactly what you entered in StatCrunch. (If you use StatCrunch more than once in a problem, write down the information for each part of the problem.)

Here is a summary of what you must list for the four different types of problems.

Binomial	Normal Probability

• n
• p
• Direction
  ○ <=
  ○ =>
  ○ <
  ○ >
  ○ =
• x
	• Mean
	• Standard Deviation
	• Direction
	  ○ <=
	  ○ =>
	• x

Poisson	**Reverse Normal**

• Lambda: λ
• Time: t
• Mean: μ
• Direction
  ○ <=
  ○ =>
  ○ <
  ○ >
  ○ =
• x
	• Mean
	• Standard Deviation
	• Tail
	• Area
	• Direction
	  ○ <=
	  ○ =>

<u>Normally Distributed</u>: Graphics > QQ Plot