NAME_____ 30 Points   DATE: 17 Nov 11

<u>DUE on 1 Dec 11</u>

1. The switchboard in a small Denver law office gets an average of 2.5 incoming phone calls during the noon hour on Thursdays. Staffing is reduced accordingly; people are allowed to go out for lunch in rotation. Experience shows that the assigned levels are adequate to handle a high of 5 calls during that hour. What is the chance that 6 calls will be received in the noon hour, some particular Thursday, in which case the firm might miss an important call?

<u>DUE on 1 Dec 11</u>

2. It has been observed that the average number of traffic accidents requiring medical assistance on the Hollywood Freeway between 7 and 8 AM on Wednesday mornings is 1. What, then, is the chance that there will be a need for exactly 2 ambulances on the freeway, during that time slot on any given Wednesday morning? The hospital dispatcher needs to know.

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3. A company owns 400 laptops. Each laptop has an 8% probability of not working. You randomly select 20 laptops for your salespeople.

(a) What is the likelihood that 5 will be broken?

(b) What is the likelihood that they will all work?

(c) What is the likelihood that they will all be broken?

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4. Find the following standard normal probabilities. Show the normal curve
with appropriate area shaded for each.

    (a) P(z > -2.10)

    (b) P(z < 3.22)

    (c) P(-2.33 < z < 2.33)

    (d) P(z < -1.75 or z > -0.75)

<u>DUE on 1 Dec 11</u>

5. In a survey of adults, 68% thought that DNA tests for identifying an individual were very reliable. You randomly select 24 adults and ask each if she or he thinks DNA tests for identifying an individual are very reliable.

(a) Decide whether you can use the normal distribution to approximate the binomial distribution. If not, explain why. If so, find the mean and the standard deviation.

(b) Find the probability that at most 15 people say DNA tests for identifying an individual are very reliable.