

BIOS 600 · Quiz 4.2: Probability Distributions & CLT

Fall 2011

1. **Honor Pledge:** I have neither given nor received unauthorized aid on this assignment.
(Sign and print your name.)

2. Assume that systolic blood pressure for a 5-year-old boy is normally distributed with a mean of 94 mmHg and a standard deviation of 11 mmHg. What is the probability of a 5-year-old boy having a blood pressure greater than 100 mmHg?

3. Suppose 25% of a population are recessive carriers of a disease. Let R equal the probability that 4 students or fewer are recessive carriers in a class of 25 students.

(a) Let Y be the number of students (in a class of 25) that are recessive carriers. What is the distribution of Y ? (Circle one.)

Normal

Binomial

Poisson

(b) What are the parameters of the distribution? (For example, write $\mu = 3$ and $\sigma = 1$.)

(c) Write R in terms of Y . (Circle one, and fill in the blank.)

$$R = P\left(Y \leq \underbrace{\hspace{2cm}}\right)$$

Write something here.

$$R = P\left(Y > \underbrace{\hspace{2cm}}\right)$$

Write something here.

(d) Which of the following are ways you could calculate R ? (Circle all that apply.)

Computer Software

Normal Approximation

Binomial Table