Second Exam

Write all answers in your blue book and show all work there. Return your exam in your blue book.

28 pts.

1) If Prob(A|B) = .5 and P(A ∩ B) = .3 and Prob(A) = .9,

a) What does P(B) =?

b) What does P(B|A) =?

c) Are A and B independent? Why?

18 pts.

2) Danger! There are fast ways and slow ways to solve here. Do the rest of the test and come back if your approach is taking a long time.

a) Find the probability that 4 or more overweight individuals will be selected in a sample of 15, if p, the probabilty of selection on each trial is .1.

b) Find the probability that 4 or more overweight individuals will be selected in a sample of 15, if p, the probabilty of selection on each trial is .45.

36 pts.

3) a) If X is distributed normally with $\mu = 20$ and $\sigma = 2$, find Prob(19.25 < X < 20.25) on a random draw.

b) If X is not distributed normally, but n = 49 and σ is assumed to be 14, find the probability that $\overline{X}$ will be within 2 units of μ.

c) If X is not distributed normally and n = 4 and σ is assumed to be 14, what is the minimum percentage of the sampling distribution for $\overline{X}$ that will be within 14 units of μ.

d) Why can't the central limit theorem be used in part c (to establish a normal distribution for $\overline{X}$)?

18 pts.

4) a) Construct a 90 percent confidence interval for μ using the following information: n = 64, $\overline{X} = 20$ and s = 4.

b) Construct a 95 percent confidence interval for μ using the following information: n = 16, $\overline{X} = 20$ and s = 4.

I have neither given nor received unfair aid on this test nor am I aware of anyone else who has.

_____