Exam II-A - Spring 2005 - ANSWERS

1. B
2. A
3. B
4. C
5. C
6. B
7. D
8. B
9. B
10. B
11. C
12. A
13. A
14. B
15. FALSE
16. TRUE
17. FALSE
18. TRUE
19. TRUE
20. TRUE
21. TRUE
22. TRUE
23. FALSE
24. FALSE
25. A.) $P(X = 0) = 1 - (0.17 + 0.07 + 0.04) = 0.72$

B.) $P(X > 0) = 0.17 + 0.07 + 0.04 = 0.28$

26. A.) $110 +/- 1.96(40)/\text{sqrt}(25)$

(94.32, 125.68) minutes per week.

B.) We are 95% confident that the true mean of study time for an intructory statistics class is between 94.32 and 125.68 minutes per week.

27. A.) $z = (270 - 266)/16 = 0.25$

$P(Z > 0.25) = 1 - 0.5987 = 0.4013$

B.) $\text{Xbar} \sim N(266, 2.07)$

C.) $z = (270 - 266)/(16/\text{sqrt}(60)) = 1.94$

$P(Z > 1.94) = 1 - 0.9738 = 0.0262$

D.) Part A.) would be the most effected, because the CLT means that xbar will still be approximately normal for calculations in parts B.) and C.), but the CLT does not help part A.).

28. A.) HYPOTHESES: $H_o: MU = 110$ versus $H_a: MU > 110$

B.) TEST STATISTIC: $z = (112.8 - 110)/(9.6/\text{sqrt}(16)) = 1.17$

C.) P-VALUE: $p\text{-value} = P(Z > 1.17) = 1 - 0.8790 = 0.1210$

D.) DECISION: Fail to Reject Ho at alpha = 0.05, because p-value = 0.1210 > alpha = 0.05

E.) CONCLUSION: We do not have enough evidence to conclude that the true mean of blood sugar level is greater than 110 mg at alpha = 0.05.