

Quiz 6 (Group) for Statistics 113
Statistics and Society–Fall 2001
Material Covered: Chapters 23,24,25 of notes and text
Friday, 16th November

Name 1 (please print): _____
last first

Name 2 (please print): _____
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Name 3 (please print): _____
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Name 4 (please print): _____
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The ABC survey organization takes a simple random sample of 450 households from a city of 100,000 households. On average, there is 2.3 females per household and the SD is 1.05 for this sample.

- (a) [1 point] A 95% confidence interval for the average number of females per household is given by (circle closest one)
(2.10, 2.50) / (2.15, 2.45) / (2.20, 2.40) / (2.25, 2.35) / (2.30, 2.30).
- (b) [1 point] Find the chance (approximately) that the average number of females per household will be in the range of (2.25,2.35) (circle closest one)
34% / 47.5% / 68% / 95% / 99%.
- (c) [1 point] The ABC survey organization does another simple random sample survey the next year where 400 households are involved and, in this case, there are most likely, on average, (circle one)
2.05 / 2.10 / 2.25 / 2.45 / 2.50.
females per household and the SD in the number of females per household is 1.05.
- (d) [1 point] **True / False.** The width of the 95% confidence interval for the average number of females in a household shrinks if, instead of 100,000 households, there was 200,000 households in the city.
- (e) [1 point] **True / False.** There is about a 95% chance that the next household chosen at random will have, on average, 2.3 females.

(a) **(2.20, 2.40)**

sample ave 2.3

sample SD 1.05

sample SE: $\sqrt{450} \times 1.05 = 22.27$

sample SE ave: $22.27/450 = 0.04949$

95% CI $2.3 \pm 2(0.05) = (2.2, 2.4)$

(b) **99%**

closest to 100% since 2.3 is in (2.25, 2.35)

(c) **2.25**

is in (2.20, 2.40)

(d) **False**

CI width shrinks for increasing *sample*, not population size

(e) **False**

utter nonsense