Chapter Review 1: Page 532, #1,3,4,5

1. a. (1-.94)/2 = .03, and the closest area is 0.0301, corresponding to a critical value of $z^* = 1.88$

b. Using table b and 50 degrees of freedom, $t^* = 2.678$

3. a. p = the proportion of all adults aged 18 and older who would say that football is their favorite sport to watch on television. It may not equal 0.37 because the proportion who choose football will vary from sample to sample.

b. Random: the sample was random

10%: The sample size of 1000 is less than 10% of all adults.

Large Counts: $n\hat{p}$ - 370 $\geq$ 10

and $n(1-\hat{p})$ = 630 $\geq$ 10.

c. 0.37 ± 1.96 ((0.37(0.63)/1000)) =

(0.3401, 0.399)

d, We are 95% confident that the interval from 0.3401 to 0.3999 captures the true proportion of all adults who would say that football is their favorite sport to watch on television.

4. a. μ = mean IQ score for the 1000 students in the school.

b. Random: The data are from an SRS

10%: the sample size of 60 is less than 10% of the population of students at the school.

Large Counts: $n = 60 \geq 30$

c. Using df = 50,

$= 114.98 \pm 1.676(14.8/\sqrt{60})$

$= (111.778, 118.182)$

d. We are 90% confident that the interval from 111.778 to 118.183 captures the true mean IQ score for the 1000 students at the school.

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5. Solve for n..

$$2.576\sqrt{\frac{0.5(0.5)}{n}} \geq 0.01$$

$n \geq 16{,}590$

Sample size would have to be 16,590 or greater.