Dr. ZABDAWI Practice Problems for sedtion 8.5 6/21/11

Name Solution Key

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither.

1) Claim: $\mu = 959$. Sample data: $n = 25$, $\bar{x} = 951$, $s = 25$. The sample data appear to come from a normally distributed population with $\sigma = 28$. 1) C

A) Student t B) Neither C) Normal

2) Claim: $\mu = 119$. Sample data: $n = 15$, $\bar{x} = 103$, $s = 15.2$. The sample data appear to come from a normally distributed population with unknown μ and σ. 2) B

A) Neither B) Student t C) Normal

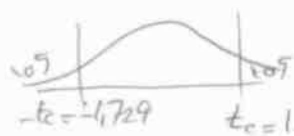
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Assume that a simple random sample has been selected from a normally distributed population. Find the test statistic, P-value, critical value(s), and state the final conclusion.

3) Test the claim that for the population of female college students, the mean weight is given by $\mu = 132$ lb. Sample data are summarized as $n = 20$, $\bar{x} = 137$ lb, and $s = 14.2$ lb. Use a significance level of $\alpha = 0.1$. 3) ______

Ho. $\mu = 132$

H1. $\mu \neq 132$



$$t_{test} = \frac{(\bar{x} - \mu)}{\frac{s}{\sqrt{n}}} = \frac{(137 - 132)}{\frac{14.2}{\sqrt{20}}} = 1.575$$

$1.575 < 1.729$

→ there is not sufficient evidence to reject Ho.

→ Fail to support Ha.

P-value = .132 > 0.1

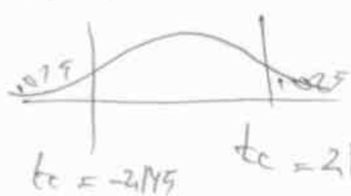
Fail to Reject Ho.

Test the given claim using the traditional method of hypothesis testing. Assume that the sample has been randomly selected from a population with a normal distribution.

4) Use a significance level of $\alpha = 0.05$ to test the claim that $\mu \neq 32.6$. The sample data consists of 15 scores for which $\bar{x} = 39.7$ and $s = 5$. 4) ______

Ho: $\mu = 32.6$

H1: $\mu \neq 32.6$



$$t_{test} = \frac{\bar{x} - \mu}{\frac{s}{\sqrt{n}}} = \frac{(39.7 - 32.6)}{\left(\frac{5}{\sqrt{15}}\right)} = 5.5$$

$5.5 > 2.145$

→ There is sufficient evidence to reject Ho.

→ " " " " to support Ha.

P-value = $7.828 \times 10^{-5} < .05$

→ Reject Ho.

$n = 15$