

## Practice 11

## 8.3 T-Test for Mean

- 1) What are the critical value for a two-tailed  $t$  test when  $\alpha = 0.02$  and  $n = 19$ ? 1) \_\_\_\_\_  
 A)  $\pm 2.878$       B)  $\pm 2.110$       C)  $\pm 2.552$       D)  $\pm 2.567$
- 2) Find the critical values for the following values of the significance level  $\alpha$ , sample size  $n$ , and alternate hypothesis  $H_1$ . 2) \_\_\_\_\_  
 $\alpha = 0.01, n = 8, H_1: \mu \neq \mu_0$   
 A) -3.499, 3.499      B) -2.998, 2.998      C) -3.355, 3.355      D) -2.326, 2.326
- 3) What is the critical value for a right-tailed  $t$  test when  $\alpha = 0.025$  and  $n = 13$ ? 3) \_\_\_\_\_  
 A) 0.697      B) 2.201      C) 2.179      D) 0.695
- 4) A recent study of business travelers claims they spend an average of \$41.00 per day on meals. As a test of this claim, a random sampling of 16 business travelers found they had spent an average of \$45.00 per day with a standard deviation of \$3.65. What are the critical values for a two-tailed  $t$  test of this claim with  $\alpha = 0.05$ ? 4) \_\_\_\_\_  
 A)  $\pm 2.131$       B)  $\pm 1.746$       C)  $\pm 2.120$       D)  $\pm 1.753$
- 5) The following display from a TI-84 Plus calculator presents the results of a hypothesis test for a population mean  $\mu$ . 5) \_\_\_\_\_

T-Test
$\mu < 33$
$t = -1.505947$
$p = 0.069186$
$\bar{x} = 32.60$
$Sx = 1.89686$
$n = 51$

How many degrees of freedom are there?

- A) 51      B) 33      C) 52      D) 50

- 6) The following display from a TI-84 Plus calculator presents the results of a hypothesis test for a population mean  $\mu$ . 6) \_\_\_\_\_

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T-Test
μ < 52
t = -4.479421
p = 0.000020
x̄ = 51.87
Sx = 0.21523
n = 55
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Do you reject  $H_0$  at the  $\alpha = 0.10$  level of significance?

- A) No B) Yes

- 7) According to *Beautiful Bride* magazine, the average age of a groom is now 26.2 years. 7) \_\_\_\_\_  
A sample of 16 prospective grooms in Chicago revealed that their average age was 26.6 years with a standard deviation of 5.3 years. What is the value for a  $t$  test of the claim?  
 $\alpha = 0.05$

- A) 2.13 B) 0.59 C) 1.81 D) 0.30

- 8) Sam Ying, a career counselor, claims the average number of years of schooling for an 8) \_\_\_\_\_  
engineer is 15.8 years. A sample of 16 engineers had a mean of 15.0 years and a standard deviation of 1.5 years.  $\alpha = 0.05$  The test value used in evaluating the claim would be:

- A) 2.68 B) -2.13 C) -2.68 D) -8.53

- 9) At a certain university, the average attendance at basketball games has been 2,825. Due 9) \_\_\_\_\_  
to the dismal showing of the team this year, the attendance for the first 11 games has averaged only 2,515 with a standard deviation of 485. The athletic director claims that the attendance is the same as last year.  $\alpha = 0.05$ .

What is the test value needed to evaluate the claim?

- A) -2.12 B) -5.39 C) -4.57 D) -7.03

10) A machine that fills beverage cans is supposed to put 24 ounces of beverage in each can. 10) \_\_\_\_\_  
Following are the amounts measured in a simple random sample of eight cans.

24.00	23.94	23.96	23.98
23.91	23.90	23.83	23.95

Assume that the sample is approximately normal. Can you conclude that the mean volume differs from 24 ounces? Use the  $\alpha = 0.1$  level of significance.

- A) There is not enough information to draw a conclusion.
- B) No. There is insufficient evidence to conclude that the mean fill volume differs from 24 ounces.
- C) Yes. The mean fill volume appears to differ from 24 ounces.

Answer Key

Testname: STA2023\_PRACTICE11

- 1) C
- 2) A
- 3) C
- 4) A
- 5) D
- 6) B
- 7) D
- 8) B
- 9) A
- 10) C