Chapter 1 Test: Introduction and Review

(The correct answers are in bold print.)

\_\_\_\_\_1. “Any measurable characteristic of a population” defines which one of the

 following terms.

a. statistics

**b. parameter**

c. inference

d. central limit theorem

 e. statistical inference

\_\_\_\_\_2. “Any measurable characteristic of a sample” defines which one of the following

 terms.

**a. statistic**

b. parameters

c. inference

d. central limit theorem

 e. statistical inference

\_\_\_\_\_3. “Inferential probability statements made about population characteristics from

 analysis of sample characteristics” defines which one of the following terms.

a. statistics

b. parameters

c. inference

d. central limit theorem

 **e. statistical inference**

\_\_\_\_\_4. A measure of the square root of the total sum of squares divided by *N* -1 is

 which one of the following?

 a. sample variance (*s*2)

 b. sample mean (*M* or $\overbar{X}$ )

 **c. sample standard deviation (*s*)**

 d. sample median (*Mdn*)

\_\_\_\_\_5. *s*2 estimates which population parameter?

 a. μ2

 **b. σ2**

 c. μ

 d. β

\_\_\_\_\_6. *M* ($\overbar{X}$ ) estimates which population parameter?

 a. σ

 b. σ2

 **c. μ**

 d. β

\_\_\_\_\_7. If a researcher wants to determine if one sample mean significantly differs

 from a population mean and she uses the standard deviation of the sample to

 estimate the standard deviation of the population, what statistic would she use?

a. *z*-test

**b. one sample *t*-test**

c. independent *t*-test

d. dependent *t*-test

\_\_\_\_\_8. When a researcher wants to determine if the dependent measure scores of a

 sample of participants significantly increases from pretest to posttest, what

 statistic would he use?

a. *z*-test

b. one sample *t*-test

c. independent *t*-test

**d. dependent *t*-test**

\_\_\_\_\_9. A researcher provides one group of participants a therapy intervention and

 another group of participants a no treatment control condition and then tests

 for a significant difference between the two groups means on a dependent

 measure of psychological adjustment after treatment. Which one of the statistics below would she use?

a. *z*-test

b. one sample *t*-test

c. independent *t*-test

d. dependent *t*-test

\_\_\_\_\_10. A researcher wants to determine if the sample mean score of a group of 40

 children is significantly higher or lower than the mean of a standardized test of

 reading when both the population mean and standard deviation are known.

**a. *z*-test**

b. one sample *t*-test

c. independent *t*-test

d. dependent *t*-test

1. The norms for the SAT Critical Reading area for 2011 college-bound seniors in high school were Mean = 497 and Standard Deviation = 114. A.A. scored 620 what was the student’s *z*-score rounded to three places?
2. *z* = 1.332
3. ***z* = 1.079**
4. *z* = 1.536
5. *z* = 1.701
6. Use DanielSoper.com as in Chapter 1, what was A.A.’s percentile rank.
7. 7.644 percentile rank
8. 87.348 percentile rank
9. **85.971 percentile rank**
10. 56.775 percentile rank

A sample of 40 individuals is receiving services for depression in an outpatient clinic. The patients are randomly assigned to a treatment and a control condition. The treatment group patients will receive an experimental antidepressant medication while the control group will receive a placebo inert pill. Symptoms of depression using the Beck Depression Inventory (BDI) are compared across the two groups of patients after 8 weeks of treatment. Higher scores represent more depression.

 Treatment Group Control Group

Mean 29.400 33.750

Variance 8.884 14.724

Group Size 20 20

1. What is the independent variable in this research problem?
2. Beck Depression Inventory
3. depressive symptoms
4. **treatment condition**
5. experimental antidepressant
6. patients with depression
7. What is the dependent variable in this research problem?
8. Beck Depression Inventory
9. **depressive symptoms**
10. treatment condition
11. experimental antidepressant
12. patients with depression
13. . Which one of the following answers is the most correct calculated independent *t* value for the example rounding 3 decimal places?

a.independent *t* = 5.900

**b. independent *t* = - 4.006**

c. independent *t* = 2.730

d. independent *t* = -1.830

e. independent *t* = 3.890

16. Go to DanielSoper.com as illustrated in Chapter 1 to obtain the *t* critical value to compare to the calculated *t*-value. Using a alpha of α = .05 and *df* = ([*n*1 – 1] + [*n*2 – 1], [20 – 1] + [20 – 1] = 38) for a two-tailed test, what is the correct critical value, *t – value (two-tailed).*

a. ± 2.345

b. ± 3.355

c. ± 1.960

d**. ± 2.024**

e. ± 4.770

17. Is there a significant difference in group means on the BDI scores across the two groups?

**True, there is a significance difference in group means on the BDI scores across the two groups, *p* < .05.**

False, there is no significant difference in group means on the BDI scores across the two groups, *p* > .05.