

Name:

### 1-A Populations and Samples

1. Fill in each blank with  $\mu$ ,  $\bar{x}$ ,  $\sigma$ ,  $s$ ,  $p$ ,  $\hat{p}$ , or  $n$ . Use a subscript of  $_1$  for Brook Knoll and  $_2$  for Vine Hill.

Sean is comparing physical fitness of fifth grade boys at Brook Knoll versus Vine Hill. He finds that out of \_\_\_\_\_ = 25 Brook Knoll boys, the average time to run a lap was \_\_\_\_\_ = 98.1 seconds with standard deviation \_\_\_\_\_ = 14.8 seconds, while out of \_\_\_\_\_ = 28 Vine Hill boys the average time was \_\_\_\_\_ = 92.9 seconds with standard deviation \_\_\_\_\_ = 15.0 seconds. \_\_\_\_\_ = 56% of the Brook Knoll boys and \_\_\_\_\_ = 46% of the Vine Hill boys could do a pull-up.

2. Identify the following for Sean's study above.

a) the samples

b) the populations

3. Describe a method of random selection Sean could use to avoid sampling bias.

### 1-B Measuring Data

4. For each of the following variables, state an operational definition and identify its level of measurement.

a) hometown

b) job satisfaction

c) date of relationship start

d) GPA

### 1-C Research Designs

5. Madi is studying the effects of marijuana on memory. State what you would recommend for the following.

a) the independent variable and its levels

b) the dependent variable, operationally defined

6. Why is Madi's study quasi-experimental instead of experimental?

7. What are some possible mediator variables that could explain why marijuana affects memory?

8. What is a possible moderator variable that could be used to test one of the mediator variables above?

9. Fill in each blank with *a* or *e*.

a) Marijuana \_\_\_ffects memory.

b) Marijuana has an \_\_\_ffect on memory.

c) The \_\_\_ffects of marijuana increase with more usage.

d) Some people are particularly \_\_\_ffected by marijuana.

### **1-D Extraneous and Confounding Variables**

10. Assume Madi finds that the marijuana smokers have poorer memories.

a) What would be a causal relationship between memory and smoking marijuana?

b) Why could Madi not conclude this?

c) What can Madi conclude?

11. Name one or more possible extraneous variables for Madi's study above, and explain how they could cause random error.

12. Name one or more possible confounding variables in Madi's study, and explain how they could cause systematic error.