

<b>1</b>	<b>A</b>	<b>1. Scales of a variables</b>
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Give **two examples** of each of the following:

a. Nominal Scale		
b. Ordinal Scale		
c. Interval Scale		
d. Ratio Scale		
e. Continuous variable		
f. Discrete variable		

<b>1</b>	<b>A</b>	<b>*2. Scales of a variables</b>
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What **type of scale** is being used for each of the following measures? (*check the box in front of the correct answer*)

a. Number of arithmetic problems correctly solved	<input type="checkbox"/> Nominal <input type="checkbox"/> Ordinal <input type="checkbox"/> Interval <input type="checkbox"/> Ratio
b. Class standing (rank)	<input type="checkbox"/> Nominal <input type="checkbox"/> Ordinal <input type="checkbox"/> Interval <input type="checkbox"/> Ratio
c. Type of phobia	<input type="checkbox"/> Nominal <input type="checkbox"/> Ordinal <input type="checkbox"/> Interval <input type="checkbox"/> Ratio
d. Body temperature	<input type="checkbox"/> Nominal <input type="checkbox"/> Ordinal <input type="checkbox"/> Interval <input type="checkbox"/> Ratio
e. Self-esteem (questionnaire)	<input type="checkbox"/> Nominal <input type="checkbox"/> Ordinal <input type="checkbox"/> Interval <input type="checkbox"/> Ratio
f. Annual income in dollars	<input type="checkbox"/> Nominal <input type="checkbox"/> Ordinal <input type="checkbox"/> Interval <input type="checkbox"/> Ratio
g. Theoretical orientation towards psychotherapy	<input type="checkbox"/> Nominal <input type="checkbox"/> Ordinal <input type="checkbox"/> Interval <input type="checkbox"/> Ratio
h. Place in a dog show	<input type="checkbox"/> Nominal <input type="checkbox"/> Ordinal <input type="checkbox"/> Interval <input type="checkbox"/> Ratio
i. Hear rate in beats per minute	<input type="checkbox"/> Nominal <input type="checkbox"/> Ordinal <input type="checkbox"/> Interval <input type="checkbox"/> Ratio

1	A	*3. Scales of a variables
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What **type of scale** is being used for each of the following measures? (*check the box in front of the correct answer*)

a. Number of people in a social network	<input type="checkbox"/> Discrete <input type="checkbox"/> Continuous
b. Intelligence	<input type="checkbox"/> Discrete <input type="checkbox"/> Continuous
c. Size of vocabulary	<input type="checkbox"/> Discrete <input type="checkbox"/> Continuous
d. Blood pressure	<input type="checkbox"/> Discrete <input type="checkbox"/> Continuous
e. Need for achievement	<input type="checkbox"/> Discrete <input type="checkbox"/> Continuous

1	A	4. Population vs. Sample
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a. Give two examples of a **population** that does not consist of individual people.

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b. For each population described in (a), indicate how you might **obtain a sample**.

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<b>1</b>	<b>A</b>	<b>6. Example variables</b>
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Patients are randomly assigned to one of four types of psychotherapy. The progress of each subject is rated at the end of 6 months.

a. What is the <b>independent</b> variable?	
b. What is the <b>dependent</b> variable?	
c. What kind of <b>scale</b> is formed by the levels of the <b>independent</b> variable?	

<b>1</b>	<b>A</b>	<b>*7. Observational vs. Experimental</b>
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What **kind of study** is each of the following: *(check the box in front of the correct answer)*

a. Comparing pet owners with those who don't own pets on an empathy measure.	<input type="checkbox"/> Observational <input type="checkbox"/> Experimental
b. Comparing men and women with respect to performance on a video game that simulates landing a space shuttle	<input type="checkbox"/> Observational <input type="checkbox"/> Experimental
c. Comparing participants run by a male vs. female experimenter with respect to the number of tasks completed in 1 hour	<input type="checkbox"/> Observational <input type="checkbox"/> Experimental
d. Comparing the solution times of participants given a hint with those not given a hint.	<input type="checkbox"/> Observational <input type="checkbox"/> Experimental

<b>1</b>	<b>A</b>	<b>8. Statistic vs. Parameter</b>
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What **kind of value** is each of the following: *(check the box in front of the correct answer)*

a. The average income for 100 US citizens selected at random from various telephone books	<input type="checkbox"/> Statistic <input type="checkbox"/> Parameter
b. The average income of citizens in the United States	<input type="checkbox"/> Statistic <input type="checkbox"/> Parameter
c. The highest age among respondents to a sex survey in a popular magazine	<input type="checkbox"/> Statistic <input type="checkbox"/> Parameter

**1 B \*2. Summation Notation**Find the value of each of the following expressions: *(write your solution in the box)*

$$X = (2, 4, 6, 8, 10)$$

$$Y = (3, 5, 7, 9, 11)$$

a.  $\Sigma (X + Y)$

b.  $\Sigma (X Y)$

c.  $(\Sigma X) (\Sigma Y)$

d.  $\Sigma (X^2 + Y^2)$

e.  $\Sigma (X - Y)$

f.  $\Sigma (X + Y)^2$

g.  $\Sigma (x + 7)$

h.  $\Sigma (Y - 2)$

**1 B 3. "Sum of the Squares" vs. "Square of the Sum"**

Make up your own set of **five numbers** and demonstrate that  $\sum X_i^2 \neq (\sum X_i)^2$

Your numbers:

$\sum X_i^2$

$(\sum X_i)^2$

**1 B 7. Rounding Decimals**

Round off the following numbers to **FOUR** decimal places:

*(Assuming digits to the right of those shown are zero):*

a. 0.76995	
b. 3.141627	
c. 2.7182818	
d. 6.89996	
e. 1.000819	
f. 22.55555	