

Name:

Statistics

Date:

Practice Quiz 8-A

1. Estimate the correlation coefficient between countries' distance from the equator and the following variables.

a) average daily temperature

b) wealth per capita

$r \approx$ _____, because warmer countries tend to be closer to the equator.

$r \approx$ _____, because wealthier countries tend to be farther from the equator.

2. What does it mean that there is a negative correlation between emotional stability and junk food consumption?

The more emotionally stable someone is, the _____.

3. Seven juniors give their fall semester grade in Spanish and in English.

a) Calculate r for the sample below by filling in the table.

$$\bar{x} = 82$$

$$\bar{y} = 80$$

$$s_x = 12.14$$

$$s_y =$$

Spanish Grade (x)	English Grade (y)	$(x - \bar{x})$	$(y - \bar{y})$	$(x - \bar{x})(y - \bar{y})$
64	70	-18	-10	180
70	53	-12	-27	
79	84			
85	85			
85	89			
92	90			
99	89			
				Σ _____ = 787

$$s_{xy} = \text{_____} \div (\text{_____} - 1) = 131.2$$

$$r = \text{_____} \div (\text{_____} \times \text{_____}) = 0.79$$

b) Calculate r and p on the calculator for a two-tailed test, and state the conclusion, followed by r and p rounded to four decimal places.

The higher someone's Spanish grade is, the _____ their English grade is expected to be, $r =$ _____, $p =$ _____.

c) Identify a possible mediating variable, and explain how it could make for a causal relationship between the two variables.

Learning Spanish can _____,

which may help with English skills.

d) Identify a possible confounding variable, and explain how it could make for a noncausal relationship between the two variables.

In general, _____

tends to increase Spanish scores and English scores, making them correlated even though neither necessarily affects the other.

e) Write the equation of the line of best fit.

$$y = \text{_____} x + 7.00$$

f) Use the line of best fit equation to predict the English grade of a junior with a grade of 80 in Spanish.

$$y(80) = \text{_____} (\text{_____}) + \text{_____} = 78.2$$

g) Use specific numbers to explain why calculating (f) is interpolation. Do not use the word *it*.

80 is between the _____, which is 64, and

the _____, which is _____.