**Statistics in Psychology**

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| **Bell Work:** How well do you remember statistical math concepts? Create a definition of the following terms based on your memory.  |
| Range |  |
| Mean |  |
| Median |  |
| Mode |  |

Sample Size

Variable = *n*

Data Set

7, 15, 20, 4, 8, 5, 4

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| **Basic Statistical Math** |
| Step 1: DO NOT PANIC! |
| Step 2: Arrange the data set in numerical order from smallest to largest.  |  |
| Step 3: Calculate the sample size. Add how many data points we have.  |  |
| Step 4: Calculate the range. Subtract the smallest # from the largest #. Show your work! | *n =*  |
| Step 5: Identify the mode. Which number has the highest frequency? |  |
| Step 6: Identify the median. Which number is the middle of the set?  |  |
| Modified Step 6: Look at the board and identify the median of the new set.  |  |
| Step 7: Calculate the mean. Add all #s in the set and divide by the sample size. Show your work! |   |

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| **Statistical Jargon**  |
| Variance: variance measures how far a set of numbers is spread out. A variance of zero indicates that all the values are identical. * Step 1: Calculate the mean of the data set.
* Step 2: For each number in the data set, subtract the mean and square the result.
* Step 3: Calculate the mean of those squared differences. The result is called the **variance.**
 | Mean = \_\_\_\_\_\_\_\_\_(7- mean) ^2 = \_\_\_\_\_\_\_\_(15- mean)^2 = \_\_\_\_\_\_\_\_(20- mean)^2 = \_\_\_\_\_\_\_\_(4- mean) ^2 = \_\_\_\_\_\_\_\_(8- mean) ^2 = \_\_\_\_\_\_\_\_(5- mean) ^2 = \_\_\_\_\_\_\_\_(4- mean) ^2 = \_\_\_\_\_\_\_\_Mean of highlighted answers: \_\_\_\_\_\_\_\_ |
| Standard Deviation: standard deviation is a measure of the amount of variation of a set of data values. A standard deviation close to 0 indicated that the data points tend to be close to the mean, while a high standard deviation indicated that the data points are spread out over a wider range of values* Step 1: Calculate the variance.
* Step 2: Take the square root of the variance.
 | Variance = \_\_\_\_\_\_\_\_\_√(Variance)= \_\_\_\_\_\_ |
| Statistical Significance: This number represents the probability that results were obtained by chance. If the significance variable is less than .05%, then the results are statistically significant. 🡪 This means that the results can be trusted; the data collected did not occur randomly; there is a high probability that the independent variable caused changes in the dependent variable.  | * **Task**: the variable used to signify statistical significance is *p.* Create a memory clue to remember the definition of “*p.*”

*p* |
| Correlation: Correlation represents how related two variables are. The number represents the strength (1 & -1 = perfect correlation aka strongest correlation. 0 = no correlation aka weakest correlation) and the positive/negative nature of the number represents the direction of the correlation.  | * **Task**: the variable used to signify correlation is *r*. Create a memory clue to remember the definition of “*r.*”

*r* |

**FRQ Practice: Research Methods**

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| **2014 FRQ #1** |
| In a study of power and self-image, participants were not told the true purpose of the study; instead, they believed they were participating in a business simulation. Researchers randomly assigned participants to a high-power (*n=*44) or low-power (*n=*44) condition. In the high-power condition, participants recalled a time when they had power over others, and in the low-power condition, they recalled a time when others had power over them. Participants were asked to adjust the height (in centimeters) of an electronic graphical image (an avatar) of themselves to reflect their personal appearance. Results indicated a statistically significant difference in participants’ perceptions of their own height across the two conditions. Participants in the high-power condition created taller self-images (mean=6.0, standard deviation=1.5) than participants in the low-power condition (mean=4.0, standard deviation=1.0)* Describe the levels of the independent variable.
* Describe how researchers measured the dependent variable.
* Create a bar graph illustrating the results of the study. Correctly label each axis.
* Explain why the researchers can conclude that there is a cause-and-effect relationship between the independent and dependent variables.
* Explain what statistical significance means in the context of the study.
* Explain why debriefing would be necessary in the study.
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| * **TASK:** Every specific thing you do is worth one point. Discuss in your groups how many points this FRQ is worth and then record the correct answer in the box provided.
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