PIERIAN DATA

EXERCISE #1 – Data

1. What is data?

2. Why do we use visualizations with data?

3. What is the difference between a population and a sample?

4. Why do we use sampling?

MEASUREMENTS OF DATA

5. What level of measurement describes an employee's education level?

6. What level of measurement describes the time needed to complete a project?

MATHEMATICAL SYMBOLS & SYNTAX

7. Set up and solve 5^3

8. Set up and solve $5!$

9. Set up and solve $\sum_{x=1}^{5} x$

MEASURES OF CENTRAL TENDENCY

10. Find the mean value of the series $\{6, 12, 8, 5, 10\}$

11. Find the median value of the series $\{7, 3, 11, 6, 9, 9\}$

MEASURES OF DISPERSION

12. Find the standard deviation σ of the series $\{2, 10, 8, 6, 3, 7\}$

QUARTILES & INTERQUARTILE RANGE (IQR)

13. Divide the following series into quartiles. $\{5, 1, 6, 4, 2, 6, 7, 3, 1, 8, 4, 8\}$
    What are the boundaries of the IQR?

14. In the above problem, where would the upper fence fall using the 1.5 IQR method?

BIVARIATE DATA

15. Calculate the Pearson Correlation Coefficient for the following table of values:
    We recommend using a spreadsheet!

	Height	Weight	$(x-\bar{x})$	$(y-\bar{y})$	$(x-\bar{x})(y-\bar{y})$	$(x-\bar{x})^2$	$(y-\bar{y})^2$
	5	143					
	7	145					
	11	147					
	12	157					
	15	158					
Sum:				Sum:			
Mean:	$\bar{x}=$	$\bar{y}=$					

$$\rho_{X,Y} = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{\Sigma(x-\bar{x})^2}\sqrt{\Sigma(y-\bar{y})^2}} = \frac{\qquad\qquad}{\sqrt{\qquad}\sqrt{\qquad\qquad}} = \frac{\qquad\qquad}{\qquad\qquad}$$

$$=$$

16. Are these values correlated? Why or why not?