Name: _____

MAT 107
Project
Number of Pages in Statistics Books

The table below lists the number of pages found in a sample of 30 random statistics books. Use this data throughout the project.

616	578	569
493	564	801
525	881	757
741	556	500
608	465	739
495	613	774
739	488	601
589	724	731
589	435	742
733	576	526

If you do the work for this project by hand, you must show the work you do to arrive at your results to earn full credit. If you use technology (computer, calculator, etc.) to obtain the results, you must state the technology you used and describe how you used it to obtain the results to obtain full credit.

1. (5 points) Construct a grouped frequency distribution for the data. Use 6 classes and let the lower limit of the first class be the minimum data value.

Class Limits	Class Boundaries	Frequency	Relative Frequency	Cumulative Frequency

2. (2 points) Construct a histogram for the data set. Be sure to label the axes appropriately.

3. (1 point) Does the distribution appear to be normal (yes or no)? Explain.

4. (6 points) Find the following descriptive statistics for the sample data.

Mean	Median	Mode(s)

Range	Variance	Standard Deviation

5. (5 points) Find the 5-number summary for the data.

Min = _____

Q_1 = _____

Q_2 = _____

Q_3 = _____

Max = _____

6. (1 point) Sketch a box plot. Do your best to draw it to scale.

7. (1 point) What is the IQR? _____

8. (3 points) Identify any outliers using the technique described on page 104 in Section 2.5 of the textbook.

Any data value less than _____ or greater than _____ is to be considered an outlier.

Therefore, the following data values are outliers (write "none" if there are no outliers):

9. (1 point) What is the z-score for a book that has 750 pages?

z = _____

10. (1 point) What is the z-score for a book that has 350 pages?

z = _____

11. (1 point) If someone were to ask you what the z-score for 350 means, what would you say?

12. (1 point) Construct a 95% confidence interval for the population's mean number of pages. Assume the population standard deviation is $\sigma = 115.0$.

_____ $< \mu <$ _____

13. (1 point) If someone were to ask you what this particular confidence interval means, what would you say?

14. (6 points) Test the hypothesis that the population's mean number of pages is greater than 560. Use $\alpha = 0.05$. Assume the population standard deviation is $\sigma = 115.0$.

Alternative hypothesis (H_1): _____

Null hypothesis (H_0): _____

Test statistic (z-test): _____

p-value: _____

Conclusion:
Do you reject the null hypothesis? (yes or no)_____

If someone were to ask what the conclusion means in this particular situation, what would you say?