



Read the criteria for a normal distribution on page 1.2. Then view the data next two pages.

Let's determine if the two-point percentages data is normal.

Part 1 – Exploring the histogram

Construct a histogram to test the first criteria. To do this, click the bottom on the screen and select **twopoint**. Then select **MENU > Plot Type > Histogram**.

- What is the overall shape of the histogram? Has the first criteria for a normal distribution been satisfied?

Part 2 – Exploring the mean and median

Calculate the mean and median on page 1.8. These commands can be found in the **Statistics > List Math** menu.

- Are the mean and median approximately equal?

- What percent do they differ by?

Part 3– The 68-95-99.7 rule

Read the directions on page 1.10 to test the third criteria. You will need to use the calculator on page 1.11 for part a and part c.

- What is the number of data points in each bar of the histogram?

- What is the percentage of values within one, two, and three standard deviations?

- Does the histogram follow the 68-95.5-99.7 rule? Explain.



Part 4– The normal probability plot

To test criteria 4, create the normal probability plot on page 1.13. To do this, add the variable **twopoint** at the bottom of the screen. Then, select **MENU > Plot Type > Normal Probability Plot**.

A normal curve creates a straight line. The more the data deviates from a straight line, the less normally distributed the data.

- What shape does the plot form? What does this tell you?

If your data set passes all four tests, then it is approximately normal and can be modeled with a normal curve. In addition, z-scores can be calculated and comparisons can be made.

- Does the data set seem to be normal? Justify your answer.

Extra Practice

Repeat this activity with the data sets **threepoint** and **games**.

- Is the data set **threepoint** approximately normal? Justify your conclusion.

- Is the data set **games** approximately normal? Justify your conclusion.