

NORMAL DISTRIBUTION: NORMAL DISTRIBUTION LAB II*

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Class Time:
Names:

1 Student Learning Outcomes:

- The student will compare empirical data and a theoretical distribution to determine if data from the experiment follow a continuous distribution.

2 Collect the Data

Measure the length of your pinkie finger (in cm.)

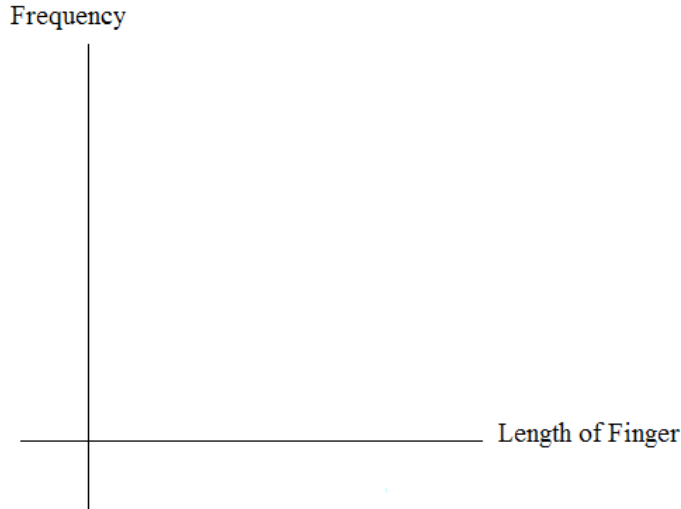
1. Randomly survey 30 adults. Round to the nearest 0.5 cm.

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Table 1

2. Construct a histogram. Make 5-6 intervals. Sketch the graph using a ruler and pencil. Scale the axes.

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3. Calculate the Following

a. $\bar{x} =$

b. $s =$

4. Draw a smooth curve through the top of the bars of the histogram. Use 1-2 complete sentences to describe the general shape of the curve. (Keep it simple. Does the graph go straight across, does it have a V-shape, does it have a hump in the middle or at either end, etc.?)

3 Analyze the Distribution

Using your sample mean, sample standard deviation, and histogram to help, what was the approximate theoretical distribution of the data from the section titled "Collect the Data"?

- $X \sim$
- How does the histogram help you arrive at the approximate distribution?

4 Describe the Data

Using the data in the section titled "Collect the Data" complete the following statements. (Hint: order the data)

REMEMBER: $(IQR = Q3 - Q1)$

- IQR =
- 15th percentile is:
- 85th percentile is:
- Median is:
- What is the empirical probability that a randomly chosen pinkie length is more than 6.5 cm?
- Explain the meaning the 85th percentile of this data.

5 Theoretical Distribution

Using the Theoretical Distribution in the section titled "Analyze the Distribution"

- IQR =
- 15th percentile is:
- 85th percentile is:
- Median is:
- What is the theoretical probability that a randomly chosen pinkie length is more than 6.5 cm?
- Explain the meaning of the 85th percentile of this data.

6 Discussion Questions

- Do the data from the section entitled "Collect the Data" give a close approximation to the theoretical distribution in "Analyze the Distribution." In complete sentences and comparing the results in the sections titled "Describe the Data" and "Theoretical Distribution", explain why or why not.