

Market researchers use the number of sentences per advertisement as a measure of readability for magazine ads. Using statistical information, students will discover what advertisers believe is the best number of sentences per advertisement.

**Part 1: Defining Deviation**

Page 1.3: Store the mean of the column sentence as **mu**. Type on calculator screen: **mu:=mean(sentence)**

What is the value stored for mean? \_\_\_\_\_

Page 1.5/1.6: Explore the relationship between **dev** and **sentence**. Record below what you believe the definition of deviation should be.

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**Part 2: Defining and Evaluating Variance**

Page 1.8: Describe the shape of the curve formed by **sentence** vs **dev<sup>2</sup>**.

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What is the regression equation? \_\_\_\_\_

Page 1.9: What is the population variance found? \_\_\_\_\_

**Part 3: Defining and Calculating Standard Deviation**

Page 1.11: What is the population standard deviation found? \_\_\_\_\_

Describe the relationship between the number of sentences in the ads and the standard deviation.

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**Part 4: Empirical Rule**

Sketch the Dot Plot for the number of sentences.

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b) Draw a vertical line marking the mean.

c) What is the mean + standard deviation? \_\_\_\_\_

d) What is the mean – standard deviation? \_\_\_\_\_

e) Draw a vertical line marking the mean + standard deviation and mean – standard deviation.

f) How many points fall within (mean – standard deviation, mean + standard deviation)? \_\_\_\_\_

g) What percent of the total data points falls within 1 standard deviation of the mean? \_\_\_\_\_

h) How does this relate to the Empirical Rule that 68% of the data lies within 1 standard deviation of the mean?

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i) What is the mean + 2\*standard deviation? \_\_\_\_\_

j) What is the mean – 2\*standard deviation? \_\_\_\_\_

k) Draw a vertical line marking the mean + 2\*standard deviation and mean – 2\*standard deviation.

l) How many points fall within (mean – 2\*standard deviation, mean + 2\*standard deviation)? \_\_\_\_\_

m) What percent of the total data points falls within 2 standard deviations of the mean? \_\_\_\_\_

n) How does this relate to the Empirical Rule that 95% of the data lies within 2 standard deviations of the mean?

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