Here's a data analysis addressing whether the reading gap between males and females in Texas grew from 2013 to 2015.

\*\*Analysis of the Gender Gap in Reading Scores\*\*

The goal is to determine if the difference in reading scores between males and females in Texas widened from 2013 to 2015. We can investigate this by calculating the gap (female score - male score) for both years and then comparing those gaps.

1. \*\*Calculate the Gap in 2013:\*\*

\* Female Score (2013): 268

\* Male Score (2013): 260

\* Gap (2013): 268 - 260 = 8

2. \*\*Calculate the Gap in 2015:\*\*

\* Female Score (2015): 265

\* Male Score (2015): 256

\* Gap (2015): 265 - 256 = 9

3. \*\*Calculate the change in the Gap:\*\*

\* Change in Gap: Gap(2015) - Gap(2013) = 9 - 8 = 1

\*\*Interpretation and Statistical Considerations\*\*

Based on the sample means, the gender gap in reading scores \*did\* grow slightly from 2013 to 2015 (from a difference of 8 points to a difference of 9 points). However, we need to consider the standard errors associated with these estimates before we can definitively conclude this is a statistically significant change.

\*\*Assessing Statistical Significance:\*\*

\* The question provides standard errors for the \*means\* of each group in each year. To formally test whether the difference in gaps is statistically significant, we need to create a confidence interval for the change in gap.

\* Since these are complex sample surveys (NAEP) and the standard errors are provided to account for the sampling design, we need to use these appropriately. A simple method would be to calculate the standard error for the difference of means in each year and combine them to get an overall standard error for the difference in the gaps.

\* \*\*Calculate Standard Error of the Difference of Means in each Year\*\*

\* 2013: √(1.4^2 + 1.3^2) = √(1.96+1.69) = 1.93

\* 2015: √(1.3^2 + 1.2^2) = √(1.69 +1.44) = 1.77

\* \*\*Calculate standard error of the difference in differences:\*\*

\* SE difference in gaps: √(1.93^2 + 1.77^2) = √(3.72 + 3.13) = 2.76

\* \*\*Calculate Test Statistic\*\*

\* Test Statistic = (Difference in Gaps) / (SE difference in gaps)

\* Test Statistic = 1 / 2.76 = 0.36

\* \*\*Calculate P-Value\*\*

\* We have a test statistic of 0.36. Because we do not have the sample size, and this isn't a t-test, we must assume a normal distribution, so we compute the p-value from the normal distribution as follows:

\* P-value = 2\\*P(Z > 0.36) = 2\\*(1-P(Z < 0.36)) = 2\\*(1-.6406) = .718

\* \*\*Conclusion:\*\* The p-value of .718 is much larger than .05, and we can't reject the null hypothesis. The difference in gaps is not statistically significant.

\*\*Conclusion\*\*

While the raw means suggest the gender gap increased slightly, this increase is not statistically significant. Therefore, based on the provided data, there is \*\*no evidence\*\* that the gap between males and females in reading grew from 2013 to 2015.