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22. Significance test for a difference in proportions with HP Prime

HP Prime can be used to perform significance tests for comparing two proportions. Here, we use the data from the hungry children example.

1. Perform a test of H_0: $p_1 - p_2 = 0$ vs. H_a: $p_1 - p_2 \neq 0$:

   - Press $\boxed{\text{Apps Info}}$ and tap the *Inference* app icon.
   - Select the **Method** field, tap $\boxed{\text{Choose}}$ and select *Hypothesis Test*
   - In the **Type** field, select *Z-Test: $\pi_1 - \pi_2$*
   - For the alternative hypothesis, select $\pi_1 \neq \pi_2$
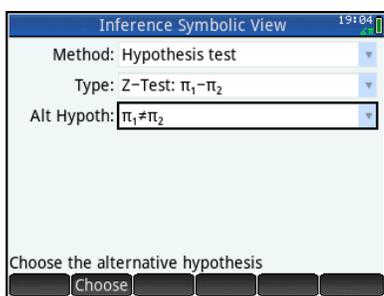
   - Press $\boxed{\text{Num Setup}}$ to enter Numeric view. Enter $x_1 = 19$, $n_1 = 80$, $x_2 = 26$, $n_2 = 150$, and $\alpha = 0.05$.
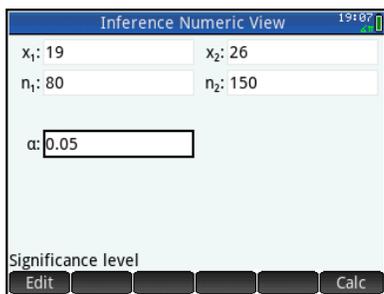
   - Tap $\boxed{\text{Calc}}$ to see the results numerically.

- Tap $\boxed{\text{OK}}$ to return to Numeric view

2. View the results graphically.

   - Press $\boxed{\text{Plot Setup}}$ to see the confidence interval graphically. The test probability is shown at the top, with the test z and $\Delta \hat{p}$ values.
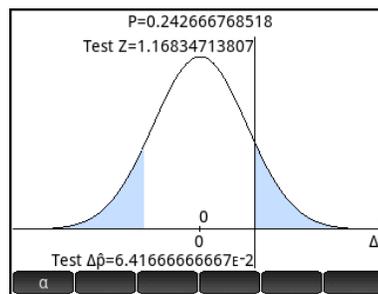
   - Tap $\boxed{\alpha}$ for an alternate view of the test results. Here, the reject area is shown shaded in blue. The test z and $\Delta \hat{p}$ values are clearly not in the shaded reject regions.