

TI 83/84 Hypothesis Testing: Two Proportions

The TI-83/84 calculator can be used to conduct two sample hypothesis tests for proportions from two samples.

Compare two proportions:

Example: In the last 10 years 51 of the 319 first round picks in the NFL draft have made multiple Pro-Bowls (the NFL version of an All-Star game). Over that same time span 35 of the 295 NBA first round picks have made multiple All-Star teams. Use your calculator to test if there is enough evidence at the 5% level to suggest that an NFL first round pick is more likely to go to multiple All-Star games than an NBA first round pick.

Procedure: For this test we will be using a 2-proportion z-test since both sample np and nq is larger than 5 for each of the two samples. In this case $H_0: p_1 = p_2$ and $H_a: p_1 > p_2$. To test:

- Press the **STAT** button on your calculator
- Use the arrow key to move over to the **TESTS** menu
- From this menu select **6:2-PropZTest** by typing **6** or highlighting the 6 and pressing **ENTER** :


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EDIT CALC TESTS
1:Z-Test...
2:T-Test...
3:2-SampZTest...
4:2-SampTTest...
5:1-PropZTest...
6:2-PropZTest...
7:ZInterval...
                
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- In the menu that comes up enter the number of successes and the sample sizes for the two proportions you would like to compare
- Select the appropriate test type based on your alternative hypothesis
- Highlight Calculate and hit the **ENTER** key:

<pre> 2-PropZTest x1:51 n1:319 x2:35 n2:295 P1:≠P2 <P2 Calculate Draw </pre>	<pre> 2-PropZTest P1>P2 z=1.470765299 P=.0706773354 p̂1=.1598746082 p̂2=.1186440678 ↓p̂=.1400651466 </pre>	<pre> 2-PropZTest P1>P2 ↑p̂1=.1598746082 p̂2=.1186440678 p̂=.1400651466 n1=319 n2=295 </pre>
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You can now complete your hypothesis test either by comparing the test statistic (z) to critical values or by comparing the P-value to the α level given in the problem. In this case, since the P-value is greater than the α level given in the problem (.05) we do not reject H_0 and can say that at the 5% level of significance there is not enough evidence to say that a first round NFL draft pick is more likely to be selected to multiple All-Star teams than a first round NBA draft pick.