

24. TECHNOLOGY CORNER

TWO-SAMPLE t TESTS ON THE CALCULATOR

TI-Nspire instructions in Appendix B; HP Prime instructions on the book's Web site.

Technology gives smaller P -values for two-sample t tests than the conservative method. That's because calculators and software use the more complicated formula on page 640 to obtain a larger number of degrees of freedom.

- Enter the Group 1 (calcium) data in L1/list1 and the Group 2 (placebo) data in L2/list2.
- To perform the significance test, go to STAT/TESTS (Tests menu in the Statistics/List Editor on the TI-89) and choose 2-SampTTest.
- In the 2-SampTTest screen, specify "Data" and adjust your other settings as shown.

TI-89

2-Sample T Test

List 1: List1

List 2: List2

Freq 1: 1

Freq 2: 1

Alternate Hypo: $\mu_1 > \mu_2$

Pooled: NO

Enter=OK

ESC=Cancel

USE \leftarrow AND \rightarrow TO OPEN CHOICES

- Highlight “Calculate” and press **ENTER**. (The Pooled option will be discussed shortly.)

2-Sample T Test

$\mu_1 > \mu_2$

t = 1.60372

P Value = 0.06442

df = 15.5905

\bar{x}_1 = 5

\bar{x}_2 = 2.72727

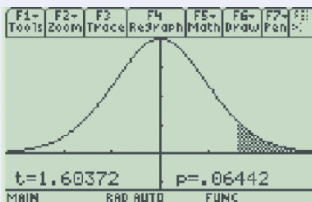
Sx1 = 0.74325

Sx2 = 5.90068

Enter=OK

MAIN RAD AUTO FUNC 2/6

If you select “Draw” instead of “Calculate,” the appropriate t distribution will be displayed, showing the test statistic and the shaded area corresponding to the P -value.



AP® EXAM TIP The formula for the two-sample t statistic for a test about $\mu_1 - \mu_2$ often leads to calculation errors by students. As a result, we recommend using the calculator’s 2-SampTTest feature to perform calculations on the AP® exam. Be sure to name the procedure (two-sample t test) and to report the test statistic ($t = 1.60$), P -value (0.0644), and df (15.59) as part of the “Do” step.