



## TECHNOLOGY CORNER

### 24. Two-sample t tests on the HP Prime

You can use the HP Prime to perform a one-sample t test using either raw data or summary statistics. Let's use HP Prime to carry out the test of  $H_0: \mu = 5$  versus  $H_a: \mu > 5$  from the dissolved oxygen example.

- Open the Statistics 1Var app. Enter the 10 calcium readings in D1 and the 11 placebo readings in D2.

Statistics 1Var Numeric View				
	D1	D2	D3	D4
1	7	-1		
2	-4	12		
3	18	-1		
4	17	-3		
5	-3	3		
6	-5	-5		
7	1	5		
8	10	7		
9				
10				
11				
12				

- Open the Inference app and select Significance Test and T-Test:  $\mu_1 - \mu_2$ . For the alternative hypothesis  $H_a$ , select  $\mu_1 > \mu_2$ .

Inference Symbolic View	
Method:	Hypothesis test
Type:	T-Test: $\mu_1 - \mu_2$
Alt Hypoth:	$\mu_1 > \mu_2$
Choose the alternative hypothesis	
	Choose

- Press **Num** and tap **Import**. In the **App** field for the first sample, select *Statistics 1Var*; in the **Column** field, select *D1*. In the **App** field for the second sample, select *Statistics 1Var*; in the **Column** field, select *D2*. Tap **OK**.

Import Sample Statistics	
App: Statistics 1Var	D1
$\bar{x}_1$ :	5
$s_1$ :	8.74325136574
$n_1$ :	10
App: Statistics 1Var	D2
$\bar{x}_2$ :	-.2727272727
$s_2$ :	5.90069333368
$n_2$ :	11
Choose column to import	
	Choose
	Cancel
	OK

- The values of  $\bar{x}$ ,  $s$ , and  $n$  shown for each sample will be pasted into the Inference app Numeric view. Enter  $\alpha = 0.05$  and leave **Pooled** unchecked.


Inference Numeric View	
$\bar{x}_1$ :	5
$\bar{x}_2$ :	-.2727272727
$s_1$ :	8.74325136574
$s_2$ :	5.90069333368
$n_1$ :	10
$n_2$ :	11
$\alpha$ :	.05
Pooled:	<input type="checkbox"/>
Significance level	
	Edit
	Import
	Calc

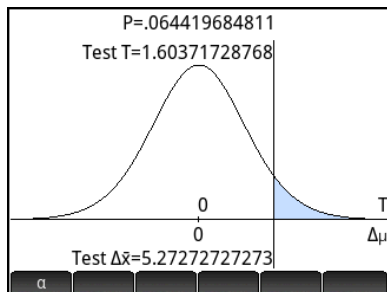
- Tap **Calc** to see the results numerically


Results	
X	
Result	1
Test T	1.60371728768
Test $\Delta\bar{x}$	5.27272727273
P	.064419684811
DF	15.5905129687
Crit. T	1.74870046224
Crit. $\Delta\bar{x}$	11.0221325388
	.064419684811
	Size
	OK

- Tap **OK** to return to the Numeric view

You can also view the confidence interval graphically.



- Press  to see the Plot view. The test probability is shown at the top, with the test  $t$  and  $\Delta\bar{x}$  values.



- Tap  for an alternate view of the test results

Here, the area associated with the alternative hypothesis and  $\alpha$ -level is shown shaded in blue.

The test  $t$  and  $\Delta\bar{x}$  values are shown as well.

The test values are close to but not in the shaded reject region. You can press  and  to increase and decrease the  $\alpha$ -level dynamically.

