$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{(N_1-1)s_1^2 + (N_2-1)s_2^2}{N_1+N_2-2}\right)\left(\frac{1}{N_1}+\frac{1}{N_2}\right)}}$$

Social Science Statistics

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{(N_1-1)s_1^2 + (N_2-1)s_2^2}{N_1+N_2-2}\right)\left(\frac{1}{N_1}+\frac{1}{N_2}\right)}}$$

T-Test Calculator for 2 Dependent Means

The value of *t* is -2.

Explanation of results

The output of this calculator is pretty straightforward. The values of *t* and *p* appear at the bottom of the page. If the text is blue, your result is significant; if it's red, it's not. The only thing that might catch you out is the way that we've rounded the data. The data you see in front of you, apart from the *t* and *p* values, has been rounded to 2 significant figures. However, we did not round when actually calculating the values of *t* and *p*. This means that if you try to calculate these values on the basis of the summary data provided here, you're likely going to end up with a slightly different - and less accurate - result.

Treatment 1	Treatment 2	*Diff* (T2 - T1)	*Dev* (Diff - M)	*Sq. Dev*
77	80	3	6.33	40.11
62	58	-4	-0.67	0.44
61	61	0	3.33	11.11
80	76	-4	-0.67	0.44
90	79	-11	-7.67	58.78
72	69	-3	0.33	0.11
86	90	4	7.33	53.78
59	51	-8	-4.67	21.78
88	81	-7	-3.67	13.44
		M: -3.33		S: 200

Significance Level:

- ○ 0.01
- ◉ 0.05
- ○ 0.10

One-tailed or two-tailed hypothesis?:

- ◉ One-tailed
- ○ Two-tailed

Difference Scores Calculations

Mean: -3.33
$\mu = 0$
$S^2 = SS/df = 200/(9-1) = 25$
$S^2_M = S^2/N = 25/9 = 2.78$
$S_M = \sqrt{S^2_M} = \sqrt{2.78} = 1.67$

T-value Calculation

$t = (M - \mu)/S_M = (-3.33 - 0)/1.67 = -2$

The value of *t* is -2. The value of *p* is .04026. The result is significant at p < .05.

Calculate Reset