Variance

$$s^2 = \frac{1}{n-1} \sum_{i-1}^{n} (x_i - \bar{x})^2$$

Confidence Intervals:

$$point\ estimate \pm (critical\ value) \times (standard\ error)$$

Hypothesis Tests:

$$test\ statistic = \frac{point\ estimate - null\ value}{standard\ error}$$

Case	Standard Error
Paired Sample Means	$\frac{s}{\sqrt{n_{pairs}}}$
Independent Sample Means	$\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$

Critical Values for z

$(1-\alpha)100\%$	90%	95%	98%	99%
$z_{\alpha/2}$	1.645	1.96	2.33	2.575

Critical Values for t: $t_{\alpha/2,(n-1)}$: Useful Formulas

$(n-1)$	$(1-\alpha)100\%$			
	90%	95%	98%	99%
1	6.3137	12.706	31.821	63.657
2	2.9200	4.3026	6.9646	9.9248
3	2.3534	3.1824	4.5407	5.8409
4	2.1319	2.7765	3.7470	4.6041
5	2.0151	2.5706	3.3649	4.0321
6	1.9432	2.4469	3.1427	3.7074
7	1.8946	2.3646	2.9979	3.4995
8	1.8596	2.3060	2.8965	3.3554
9	1.8331	2.2622	2.8214	3.2498
10	1.8125	2.2281	2.7638	3.1693
11	1.7959	2.2010	2.7181	3.1058
12	1.7823	2.1788	2.6810	3.0545
13	1.7709	2.1604	2.6503	3.0123
14	1.7613	2.1448	2.6245	2.9768
15	1.7530	2.1315	2.6025	2.9467
16	1.7459	2.1199	2.5835	2.9208
17	1.7396	2.1098	2.5669	2.8982
18	1.7341	2.1009	2.5524	2.8784
19	1.7291	2.0930	2.5395	2.8609
20	1.7247	2.0860	2.5280	2.8453
21	1.7207	2.0796	2.5177	2.8314
22	1.7171	2.0739	2.5083	2.8188
23	1.7139	2.0687	2.4999	2.8073
24	1.7109	2.0639	2.4922	2.7969
25	1.7081	2.0595	2.4851	2.7874
26	1.7056	2.0555	2.4786	2.7787
27	1.7033	2.0518	2.4727	2.7707
28	1.7011	2.0484	2.4671	2.7633
29	1.6991	2.0452	2.4620	2.7564
30	1.6973	2.0423	2.4573	2.7500