t-Test Formula Summary Sheet

One Sample t test		
t test formula (1 sample)	$t = \frac{M - \mu}{S_x}$	Sample mean (M) minus population mean you are comparing your sample to (μ), divided by the standard error (S_x).
standard error for 1 sample t test	$S_x = \frac{\hat{s}}{\sqrt{N}}$	Sample standard deviation ($\hat{s}$, calculated with N-1 in the denominator) divided by the square root of the number of people (N).
degrees of freedom	$df = N - 1$	Number of subjects (N) minus 1
Two Sample t test		
t test formula (two samples)	$t = \frac{M_1 - M_2}{S_{pooled}}$	Mean of group 1 (M_1) minus mean of group 2 (M_2), divided by the pooled standard error (S_{pooled}).
pooled standard error for 2 sample t test	$S_{pooled} = \sqrt{\left(\frac{\hat{s}_1}{\sqrt{N_1}}\right)^2 + \left(\frac{\hat{s}_2}{\sqrt{N_2}}\right)^2}$	Standard deviation of group 1 ($\hat{s}_1$) divided by the square root of the number of people in group 1 ($\sqrt{N_1}$), squared (^{2}); plus standard deviation of group 2 ($\hat{s}_2$) divided by the square root of the number of people in group 2 ($\sqrt{N_2}$), squared (^{2}); then square root of everything (√).
degrees of freedom	$df = N - 2$	number of subjects (N) minus 2
t test of r vs. 0		
t test formula for r	$t = \frac{r - \square}{S_r}$	correlation of interest (r) minus population correlation you are comparing to (□ – usually this is 0), divided by the standard error of r (S_r)
standard error of r	$S_r = \sqrt{\frac{1 - r^2}{N - 2}}$	1 minus the squared r value, divided by N – 2. Then take the square root of this.
degrees of freedom	$df = N - 2$	Number of subjects (N) minus 2
Effect size r (from t test)		
effect size (r)	$r = \sqrt{\frac{t^2}{t^2 + df}}$	Using the t obtained from your t test, square the t value (t^2) and divide by this squared t value plus the degrees of freedom from your t test (df). Then take the square root of this (√).