one-sample t-tests

$$t = \frac{\overline{X} - u}{s/\sqrt{n}}$$

1. Find the mean
2. Find the variance/standard deviation (subtract the mean from each score, square that number, sum them and divide by n-1)
3. Find the square root of n
4. *u* is given
5. Plug them into the formula
6. df = n - 1

t-test independent sample

$$t = \frac{\overline{X}_1 - \overline{X}_2}{s_{diff}}$$

1. Find the means for each sample.
2. Find the variance/standard deviation for each sample
3. Find the pooled standard deviation:

$$s_p = \sqrt{\frac{(n_1 - 1)s^2_1 + (n_2 - 1)s^2_2}{(n_1 - 1) + (n_2 - 1)}}$$

4. Find the standard error of the difference:

$$s_p * \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} = s_{diff}$$

5. Plug into the formula
6. df = $n_1 + n_2 - 2$

t-test for dependent samples (pre-test and post-test)

$$t = \frac{\overline{X}_{diff}}{s_D/\sqrt{n}}$$

1. Find the mean for the difference $(\overline{X}_{diff})$ between first score and second score (subtract second score from first score and then find the mean in the usual way)
2. Find the variance/standard deviation for the differences (subtract the mean difference from each difference, square that number, sum them, and divide by n (# of pairs) - 1
3. Plug these into the formula
4. df = n (# of pairs) - 1