VISUAL SUMMARY

t Tests Between Two Independent Sample Means

Before You Begin: State H_0 and H_1.

Compute $\overline{X}_1$, S_1, n_1, $\overline{X}_2$, S_2, n_2.

Estimate the
standard error of the means

X_1 $\qquad\qquad\qquad\qquad$ X_2

Estimated $\sigma_{\overline{X}_1} = \dfrac{S_1}{\sqrt{n_1}}$

Estimated $\sigma_{\overline{X}_2} = \dfrac{S_2}{\sqrt{n_2}}$

Estimate the standard error of the
difference between means:

$$\text{estimated } \sigma_{diff} = \sqrt{(\text{estimated } \sigma_{\overline{X}_1})^2 + (\text{estimated } \sigma_{\overline{X}_2})}$$

Compute t:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\text{estimated } \sigma_{\text{diff}}}$$

Compute the degrees of freedom:

$$df = (n_1 - 1) + (n_2 - 1)$$

Find the critical value in Table T

If $|t| >$ critical value,
reject H_0