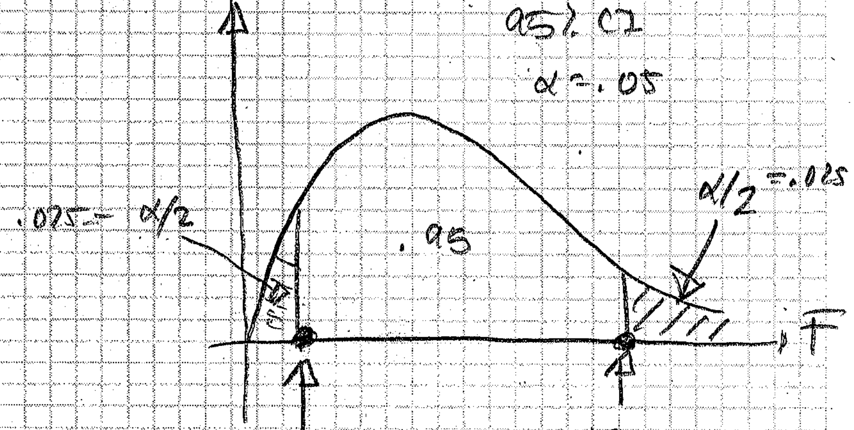
Confidence Interval for the Ratio of two Population Variances.

Sample size	Sample Variance
$n_1 = 13$	$S_1^2 = 2.6$
$n_2 = 21$	$S_2^2 = 8.4$

95% CI

$\alpha = .05$

$$\frac{\sigma_1^2}{\sigma_2^2} \sim F_{n_1-1,\, n_2-1}$$



$F_{1-\frac{\alpha}{2},\, n_1-1,\, n_2-1}$

$F_{.9750,\,12,\,20}$

$F_{\alpha/2,\, n_1-1,\, n_2-1}$

$F_{.025,\,12,\,20} = 2.68$

A 95% C.I for σ_1^2/σ_2^2 is given by

$$\left(\frac{S_1^2}{S_2^2} \cdot \frac{1}{F_{\alpha/2,\, n_1-1,\, n_2-1}} ,\ \frac{S_1^2}{S_2^2} \cdot \frac{1}{F_{1-\alpha/2,\, n_1-1,\, n_2-1}} \right)$$

$$\boxed{\left(\frac{S_1^2}{S_2^2} \cdot \frac{1}{F_{\alpha/2,\, n_1-1,\, n_2-1}} ,\ \frac{S_1^2}{S_2^2} * F_{\alpha/2,\, n_2-1,\, n_1-1} \right)}$$

$$\left(\frac{S_1^2}{S_2^2} \cdot \frac{1}{F_{.025,\,12,\,20}} ,\ \frac{S_1^2}{S_2^2}\, F_{.025,\,20,\,12} \right)$$

$$\left(.3095 * \frac{1}{2.68} ,\ .3095 * 3.07 \right) = (.1155,\ .9502)$$

σ_1^2/σ_2^2