Argument #1

Null: the population mean percentage of women is the same for all the **other** judges.

Your turn: Find the F-statistic

		Sum of squared residuals	d.f.	MSS	F	P-value
	Extra	C: subtract A from B 32644	F: subtract D from E 5	G: divide C by F 65.29	I: divide G by H 1.365	use R: 1- pf(I, F, D) 1-pf(1.365, 5, 39) 0.26
Full model	separate means model	A 1864.46	D 39	H: divide A by D 47.81		
Reduced model	two means model	B 2190.90	E 44			

Argument #2 the population mean percentage of women for Spock is the same as the mean for all the other judges

		Sum of squared residuals	d.f.	MSS	F	P-value
	what's left? Extra	C: subtract A from B Extra SS $3791.53 - 2190.90 = 1600.63$	F: subtract D from E Extra d.f: ①	G: divide C by F $1600.63/1 = 1600.63$	I: divide G by H $\dfrac{1600.63}{49.78} \approx 32.151$	<0.0001
Full model	two means model	2190.90	44	H: divide A by D $2190.90/44 \approx 49.78$	$1 - pf(32.15, 1, 44)$	
Reduced model	equal means model	3791.53	45			

$\hat{\sigma}^2_{full}$