TWO-WAY ANOVA. PART II

A car manufacturer wants to test three brands of tires, T_1, T_2 and T_3, on two of its most popular car models C_1 and C_2 to determine the tire-car combination that produces the highest mileage. Twelve cars and twelve sets of tires were used for a period of time until the tires were worn out. Two cars of each model were tested with each tire-brand combination and the mileage (in thousands) was recorded.

An incomplete ANOVA table is given.

a) Complete the table.

b) Test if there was a significant interaction AB

c) If needed, test for a significant car effect and a significant tire effect

ANOVA TABLE

Source	df	SS	MS	F
Treatment	5	63.42	12.68	4.91
(A) Car	1	2.08	2.08	.81
(B) Tire	2	36.16	18.08	7.01
A×B	2	25.18	12.59	4.88
Error	6	15.48	2.58	
Total	11	78.92		

$\frac{SSB}{2} = 18.08 \Rightarrow SSB = 18.08 \times 2 = 36.16$

$\frac{SSE}{6} = 2.58 \Rightarrow SSE = 2.58 \times 6 = 15.48$

$SST = 63.42 - 2.08 - 36.16 = 25.18$