Practice Problems

Problem 10.8:

An experiment is conducted to study the influence of operating temperature and three types of face-plate glass in the light output of an oscilloscope tube. The following data are collected.

	Temperature		
Glass Type	**100**	**125**	**150**
	580	1090	1392
1	568	1087	1380
	570	1085	1386
	550	1070	1328
2	530	1035	1312
	579	1000	1299
	546	1045	867
3	575	1053	904
	599	1066	889

(a) Complete the following ANOVA table.

General Linear Models Procedure
Dependent Variable: RESP

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
GLASS	(1)	(6)	(11)	230.80	1.E-13
TEMP	(2)	(7)	(12)	2969.74	2.E-23
GLASS*TEMP	(3)	(8)	72251.3	219.46	5.E-15
Error	(4)	(9)	329.2		
Corrected Total	(5)	(10)			

(b) Is there a significant interaction effect? ($\alpha = 0.05$)

(c) Does glass type or temperature affect the response? ($\alpha = 0.05$)

(d) What conclusions can you draw? ($\alpha = 0.05$)

Problem 10.9:

Consider the following data.

Row Factor	Column Factor 1	2	3
	570	1063	565
1	565	1080	510
	583	1043	590
	528	988	526
2	547	1026	538
	521	1004	532

(a) Complete the following ANOVA table.

General Linear Models Procedure
Dependent Variable: RESP

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
ROW	(1)	7160.06	(7)	(11)	.00176
COLUMN	(2)	945342.11	(8)	1056.12	3.E-14
ROW*COLUMN	(3)	818.11	(9)	(12)	.42711
Error	(4)	(6)	(10)		
Corrected Total	(5)	958690.94			

(b) Is there a significant interaction effect? ($\alpha = 0.05$)

(c) Is the row factor significant at $\alpha = 0.01$?

(d) Is the column factor significant at $\alpha = 0.01$?

(e) What conclusions can you make?