

Statistics 506
Final Exam

1. Analyze the centerpoint design below for factor effects and curvature. If curvature is present, examine contour plots and comment.

Factor settings	Response
(-1,-1,-1)	2.9
(1,-1,-1)	-1.2
(-1,1,-1)	-2.5
(1,1,-1)	5.0
(-1,-1,1)	3.7
(1,-1,1)	-1.1
(-1,1,1)	-3.7
(1,1,1)	4.4
(0,0,0)	.3
(0,0,0)	-.3
(0,0,0)	-.1
(0,0,0)	.3
(0,0,0)	.2

2. A researcher studied 4 factors in a replicated eight run design. The goal of the experiment is to maximize the response.

Factor settings	Response
(-1,-1,-1,-1)	-.5, 2.4, .4
(1,-1,-1,1)	-2.8, -2.5, 2.2
(-1,1,-1,1)	.3, 0, -.1
(1,1,-1,-1)	-5.3, 4.5, -.2
(-1,-1,1,1)	-2.8, -.9, -1.6
(1,-1,1,-1)	4.9, 1.3, 1.7
(-1,1,1,-1)	-2.7, -1.8, -2.5
(1,1,1,1)	.6, -1, 5.6

- (a) Compute the standard deviation and SN_T for each run.
- (b) Identify factors that affect the mean using a replicated analysis. Identify factors that affect the variance. What are your conclusions from the two analyses?
- (c) Analyze the data using SN_T . What are your conclusions? How do they compare with your earlier analysis?