

A Two-Factor Design of Experiment

Experiment: _____

Response Variable: _____

Predictor Variable: _____

Predictor Variable: _____

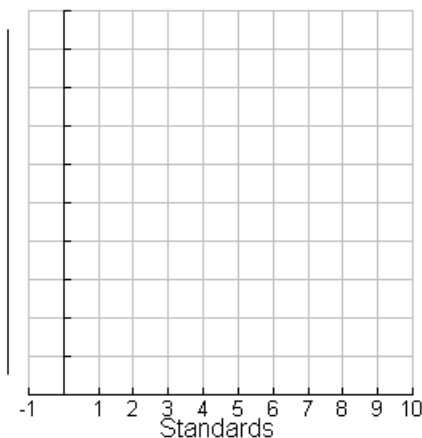
Variable			Variable		
-	Standard	+	-	Standard	+

Order	Runs	Result	Order	Runs	Result	Order	Runs	Result
1	Stand		1	Stand		1	Stand	
	++			++			++	
	--			--			--	
4	Stand		4	Stand		4	Stand	
	+-			+-			+-	
	-+			-+			-+	
7	Stand		7	Stand		7	Stand	

Nine Standards								

Runs		First DOE	Second DOE	Third DOE	Average
Variable	Variable				
+	+				
-	-				
+	-				
-	+				

Nine Standard Runs



Grand Average: _____

The standards indicate that

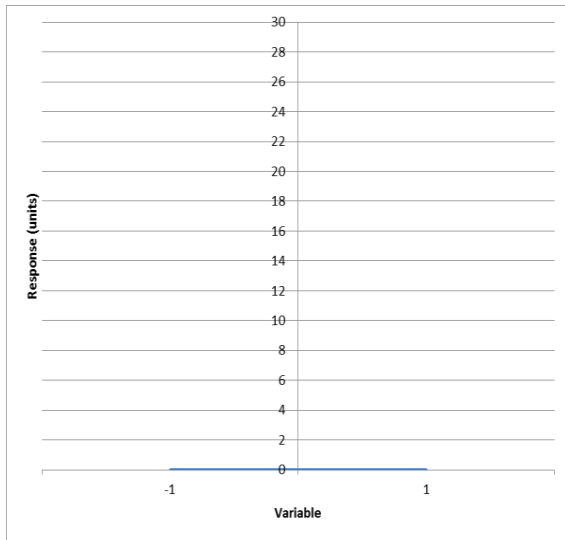


Figure 1. Effect of _____

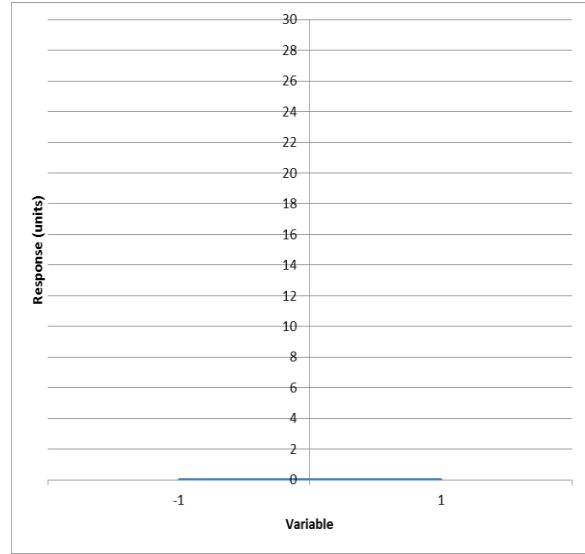


Figure 2. Effect of _____

Notice uniform scales

Variable	
(-) Amt	(+) Amt
Avg =	Avg =

Variable	
(-) Amt	(+) Amt
Avg =	Avg =

Effect of **Variable** is _____.
(the change from low to high)

On average, as _____
increases, _____
(increases or decreases) by
_____.

Effect of **Variable** is _____ .
(the change from low to high)

On average, as _____
increases, _____
(increases or decreases) by
_____.

NOTE: In EVERY heading, replace the word **Variable** with the specific factor and factor value. Replace **Amt** with the low and high values of each variable. Make sure the data point labels are crossed by any line.

Interaction Effect (_____ and _____)
two segments horizontal axis

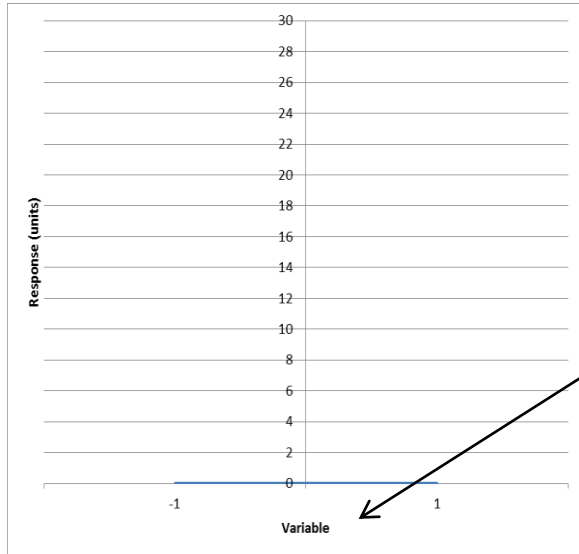


Figure 3. Interaction of _____ and _____

			Variable	
			(-) Amt	(+) Amt
Variable	Solid Segment	(+) Amt		
	Dotted Segment	(-) Amt		

Slope of the segment of _____ (+) **minus** Slope of the segment of _____ (-)

gives the Effect (_____ vs _____) = _____ - _____ = _____

Comment on what the graph is implying about the interaction _____

Prediction Equation (*Insert – Object – Microsoft Equation*):

$$Y = \text{grand average} + \frac{\text{effect of predictor variable}_1}{2} * \text{variable}_1 +$$

$$\frac{\text{effect of predictor variable}_2}{2} * \text{variable}_2 + \frac{\text{effect of the interaction}}{2} * \text{variable}_1 * \text{variable}_2$$