

**Linear Regression the Old-Fashioned Way**  
(Fill in the Blanks...)

	X Data $X_i$	$X_i^2$	Y Data $Y_i$	$Y_i^2$	$X_i \cdot Y_i$
Sample 1					
Sample 2					
Sample 3					
Sample 4					
Sample 5					
Sample 6					
Sample 7					
Sample 8					
Sample 9					
Sample 10					
SUM					

$$\sum_{i=1}^n X_i =$$

$$\sum_{i=1}^n Y_i =$$

$$\bar{X} = \text{average X} =$$

$$\bar{Y} = \text{average Y} =$$

$$\sum_{i=1}^n X_i^2 =$$

$$\sum_{i=1}^n Y_i^2 =$$

$$\sum_{i=1}^n X_i Y_i =$$

Now, solve either form of the following two equations, and you'll know the equations of your line!

$$\text{slope} = \frac{\sum_{i=1}^n X_i Y_i - \left( \sum_{i=1}^n X_i \sum_{i=1}^n Y_i \right) / n}{\sum_{i=1}^n X_i^2 - \left( \sum_{i=1}^n X_i \right)^2 / n}$$

$$\text{intercept} = \frac{\sum_{i=1}^n Y_i}{n} - \text{slope} \frac{\sum_{i=1}^n X_i}{n} = \bar{Y} - \text{slope} \cdot \bar{X}$$

Equation for regression line is:  $Y = \text{slope} \cdot X + \text{intercept}$

$$Y = \quad \cdot X +$$

Now solve for t using the slope you determined!