EAS 199A: Manual calculations of a Least Squares fit of a line to data

Given a set of (xi,yi) data, compute the slope and intercept of the line that fits the data according to the criterion of least squares error in the y values of the fit function.
More directly: find the least squares line fit to the data.
In this example, we do not use the built-in curve fitting tools, i.e. the trendline function.

Original data and intermediate computations:

	xi	yi	xi*yi	xi^2
	1	9	9	1
	2	21	42	4
	3	28	84	9
	4	41	164	16
	5	47	235	25
Sums:	15	146	534	55
n	5			

Color Key:

Original data
Intermediate terms from (xi,yi)
Sums of terms
Least squares fit coefficients
Evaluate the fit

Formulas:

m = (n*sum(xi*yi) - sum(xi)*sum(yi))/ (n*sum(xi^2) - (sum(xi))^2)
b = (sum(yi) - m*sum(xi))/n

Least Squares coefficients

m	9.6
b	0.4

Least squares fit function

xfit	yfit
1	10
5	48.4

Plot of the original data and the fit function