Multiple linear regressions

TAble layout

y	x1	x2	$(x_1)^2$	$(x_2)^2$	x_1y	x_2y

Supposed Goal

$$y = \beta_0 + \beta_1 X1 + \beta_2 X2$$

Step 0.5

$$\sum x_i y = \sum x_i y - \frac{(\sum x_i)(\sum y)}{n}$$
$$\sum x_i^2 = \sum x_i^2 - \frac{(\sum x_i)^2}{n}$$

Step 1

$$\beta_1 = \frac{(\sum x_i^2)(\sum x_1 y) - (\sum x_1 x_2)(\sum x_2 y)}{(\sum x_i^2)(\sum x_i^2) - \sum x_1 x_2}$$

Step 2

$$\beta_2 = \frac{(\sum x_i^2)(\sum x_2 y) - (\sum x_1 x_2)(\sum x_1 y)}{(\sum x_1^2)(\sum x_2^2) - (\sum x_i x_2)^2}$$

step 3

$$\beta_0 = \bar{y} - \beta_1 \bar{X1} - \beta_2 \bar{X2}$$