$$\frac{dSSR}{d\beta_0} = \left(2 \sum (y - \sum_j \beta_j x_j)\right)(-1) = 0$$

$$\sum_i y_i = \sum_i \sum_j \beta_j x_{ij}$$

$$\frac{\sum_i y_i}{n} = \sum \hat{y}_i / n$$

$$\hat{y} / n = \bar{y}$$

$$\sum y_i x_{i1} = \sum \hat{y}_i x_{i1}$$