Q1)

$$f(1) = \sum_{i=0}^{m} \left(y_i - \hat{y}\right)^2$$

$$= \sum_{i=0}^{m} \left(y_i - a - bx_i\right)^2 \qquad \text{We know that } \hat{y} = a + bx_i$$

$$\Leftrightarrow -2 \sum_{i=0}^{m} \left(y_i - a - bx_i\right)$$

$$\Leftrightarrow -2 \sum_{i=0}^{m} \left(y_i - a\right) - \sum_{i=0}^{m} \left(bx_i\right)^2$$

$$-2 \sum_{i=0}^{m} \left(y_i - \overbrace{na}^{1+\cdots+k}\right) - 2b \sum_{i=0}^{m} x_i$$

$$\sum_{i=0}^{m} (y_i) - ma = b \sum_{i=0}^{m} x_i$$

$$ma = \sum_{i=0}^{m} (y_i) - b \sum_{i=0}^{m} x_i$$

$$\boxed{a = \frac{1}{m} \sum_{i=0}^{m} y_i - \frac{b}{m} \sum_{i=0}^{m} x_i}$$