

Ex. 2

$$1) a = \frac{\text{Cov}_{x,y}}{\text{Var}(X)} \quad \text{ou} \quad \text{Cov}_{x,y} = \overline{XY} - \overline{X}\overline{Y}$$

$$\begin{aligned} \text{et } \overline{X} &= \frac{1}{N} \sum x = \frac{1}{21} 431\,200 = 20\,533,33 \quad \text{Var}(X) = \overline{X^2} - \overline{X}^2 \\ &= 20\,533,33^2 - \frac{1}{21} \sum x^2 \\ &= 421\,617\,77,77 - \frac{1}{21} \dots \\ &= 296\,383\,174,6 \\ \overline{Y} &= \frac{1}{21} \sum y = \frac{1}{21} 992\,600 = 47\,266,66 \dots \\ \overline{xy} &= \frac{1}{21} \sum xy = \frac{1}{21} 29\,144\,300\,000 = \\ &= 1\,387\,823\,809,52 \dots \end{aligned}$$

$$\Rightarrow \text{Cov}_{x,y} = 417\,281\,587,3$$

$$a = 1,408$$

$$b = \overline{Y} - a\overline{X}$$

$$= 47\,266,66 \dots - 1,408 \times 20\,533,33 \dots$$

$$= 18\,357,53 \dots$$