

$$A \begin{matrix} \downarrow \\ (3, \textcircled{4}) \\ \uparrow \end{matrix} \times B \begin{matrix} \downarrow \\ (\textcircled{4}, 3) \\ \uparrow \end{matrix}$$

$$A \times B = \textcircled{4} (3, 3)$$

$$B \times A = \textcircled{4} (4, 4)$$

$$= \underline{\text{MULT}}(A; B)$$

CTRL+SHIFT+
ENTER

$$A \cdot A^{-1} = I \quad \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{TRANSPOSE}(A) = A^T$$

$$\text{MULT}(A; B)$$

$$\text{MINVERSE}(A) = A^{-1}$$

$$\begin{array}{c} A \\ \hline 3 \ 4 \ 66 \\ 0 \ -33 \ 1 \\ 42 \ 3 \ 2 \end{array}
 \begin{array}{c} X \\ \hline x_1 \\ x_2 \\ x_3 \end{array}
 =
 \begin{array}{c} b \\ \hline 16 \\ 77 \\ 12 \end{array}$$

$$3x = 6$$

$$\left\{ \begin{array}{l} 3x_1 + 4x_2 + 66x_3 = 16 \\ -33x_2 + x_3 = 77 \\ 42x_1 + 3x_2 + 2x_3 = 12 \end{array} \right.$$

$$X = A^{-1} \cdot b$$

$$Ax = b$$

$$A \times \underline{A^{-1}} = \underline{bA^{-1}}$$

$$\underline{A^{-1}A} x = A^{-1} b$$

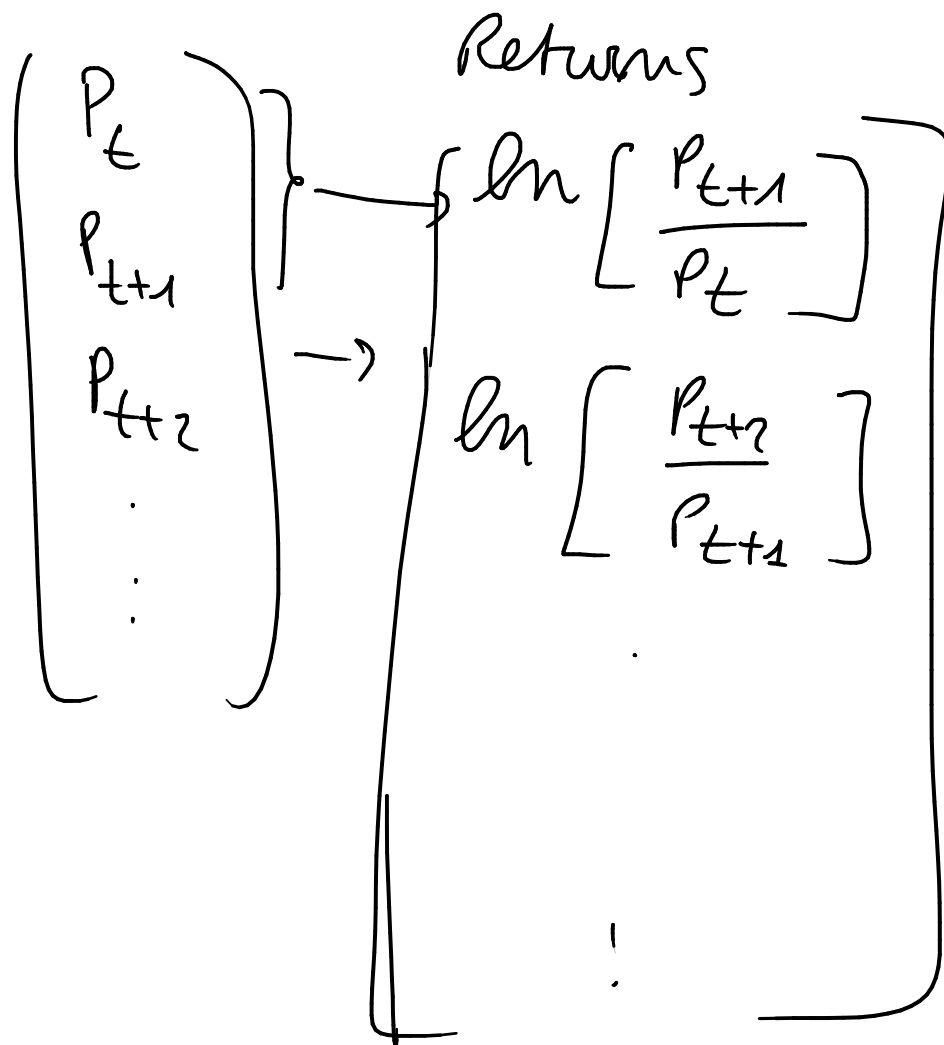
$${}^3 A_3 \quad {}^3 b_1$$

$$\begin{array}{l} A \\ 3 \times \cancel{3} \times \cancel{3} \times 1 = \\ \times \\ \begin{array}{|c|} \hline \\ \hline \\ \hline \\ \hline \\ \hline \end{array} \end{array} \quad \begin{array}{l} b \\ \cancel{3} \times \cancel{3} \times 1 = \\ 3 \times 1 \end{array}$$

$$\underbrace{A^{-1}} \cdot b \text{ in 1 STEP}$$

↓

$$= \text{MULT}(\text{INVERSE}(A); b)$$



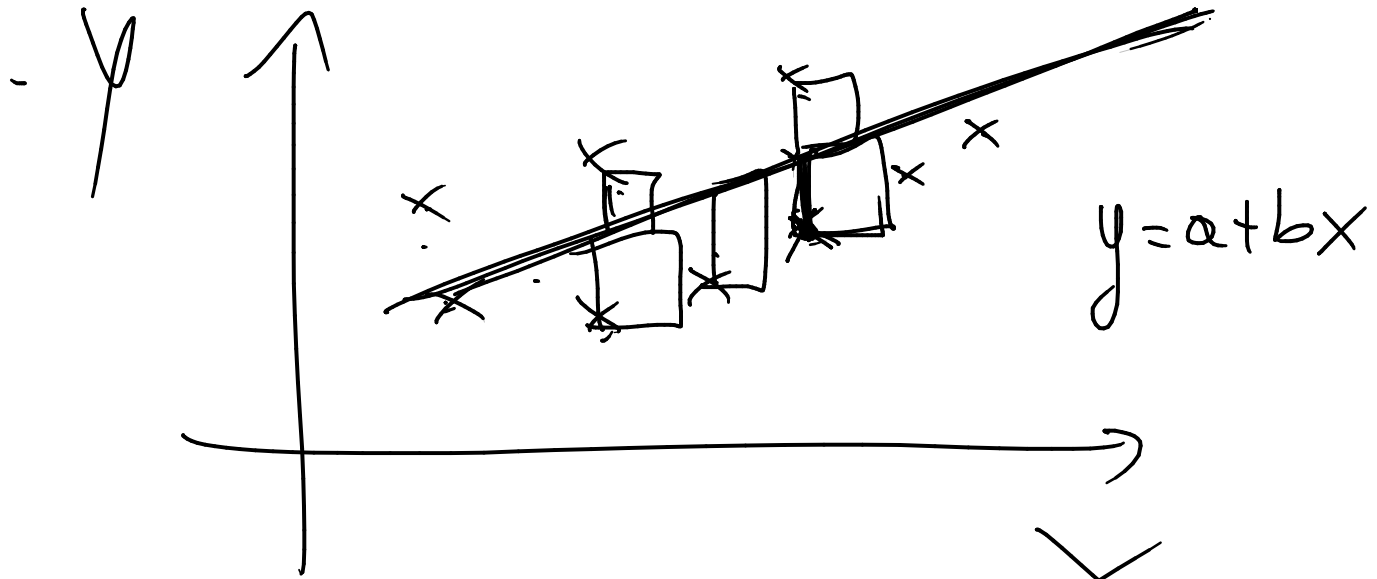
$$\text{AVERAGE (Returns)} = \frac{1}{n} \sum_i R_i$$

$$\text{VARP (Returns)} = \frac{1}{n} \sum_i (R_i - \mu)^2$$

$$\text{STDEV (Returns)} = \sqrt{\text{VARP}(\cdot)}$$

$$\underline{\text{COVAR}}(x, y) = \frac{1}{n} \sum_i [(R_i^x - \mu^x)(R_i^y - \mu^y)]$$

$$\underline{\text{CORREL}}(x, y) = \frac{\text{COVAR}(x, y)}{s_x \cdot s_y} = \rho$$



$$\rho = \sqrt{R^2}$$

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$$\text{CORREL}(x, y)$$

$$R^2$$

$$0 < R^2 < 1$$