

REGRESIONES LINEALES Y NO LINEALES

<p>1. REGRESION LINEAL $y = bx + a$</p> $y = bx + a$ $a = \frac{\sum x^2 \sum y - \sum x \sum xy}{n \sum x^2 - (\sum x)^2}$ $b = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2}$	<p>2. REGRESION CUADRATICA $y = a + bx + cx^2$</p> $y = a + bx + cx^2$ $an + b \sum x + c \sum x^2 = \sum y$ $a \sum x + b \sum x^2 + c \sum x^3 = \sum xy$ $a \sum x^2 + b \sum x^3 + c \sum x^4 = \sum x^2y$
<p>3. REGRESION CUBICA $y = a + bx + cx^2 + dx^3$</p> $y = a + bx + cx^2 + dx^3$ $an + b \sum x + c \sum x^2 + d \sum x^3 = \sum y$ $a \sum x + b \sum x^2 + c \sum x^3 + d \sum x^4 = \sum xy$ $a \sum x^2 + b \sum x^3 + c \sum x^4 + d \sum x^5 = \sum x^2y$ $a \sum x^3 + b \sum x^4 + c \sum x^5 + d \sum x^6 = \sum x^3y$	<p>4. REGRESION LOGARITMICA $y = a + b \ln X$</p> $y = a + b \ln X$ $b = \frac{n \sum x' y - \sum x' \sum y}{n \sum x'^2 - (\sum x')^2}$ $a = \sum y \text{ prom} - b \sum y' \text{ prom}$ <p>Donde: $X' = \ln x$</p>
<p>5. REGRESION POTENCIA $y = ax^b$</p> $y = ax^b$ $b = \frac{n \sum x' y' - \sum x' \sum y'}{n \sum x'^2 - (\sum x')^2}$ $a' = \sum y' \text{ prom} - b \sum x' \text{ prom}$ <p>Sabemos que $a' = \log a$</p> <p style="text-align: center;">Despejamos $a = 10^{-a'}$</p> <p>Donde: $X' = \log(X)$ $Y' = \log(Y)$</p>	<p>6. REGRESION EXPONENCIAL $y = ae^{bx}$</p> $y = ae^{bx}$ $b = \frac{n \sum xy' - \sum x \sum y'}{n \sum x^2 - (\sum x)^2}$ $a' = \sum y' \text{ prom} - b \sum x \text{ prom}$ <p>Sabemos que $a' = \ln a$</p> <p style="text-align: center;">Despejamos $a = e^{a'}$</p> <p>Donde: $Y' = \ln Y$</p>
<p>7. REGRESION INVERSA $y = a + \frac{b}{x}$</p> $b = \frac{n \sum x' y - \sum x' \sum y}{n \sum x'^2 - (\sum x')^2}$ $a = \sum y \text{ prom} - b \sum x' \text{ prom}$ <p>Donde: $X' = 1/X$</p>	

REGRESION MULTIPLE

$$\begin{bmatrix} n & \sum x_1 & \sum x_2 \dots & \sum x_n \\ \sum x_1 & \sum x_1^2 & \sum x_1 x_2 & \sum x_1 x_n \\ \sum x_2 & \sum x_2 x_1 & \sum x_2^2 & \sum x_2 x_n \\ \sum x_n & \sum x_n x_1 & \sum x_n x_2 & \sum x_n^2 \end{bmatrix} = \begin{bmatrix} b_0 \\ b_1 \\ b_2 \\ b_3 \end{bmatrix} * \begin{bmatrix} \sum y \\ \sum x_1 y \\ \sum x_2 y \\ \sum x_n y \end{bmatrix}$$

$$A * B = C$$

$$A^{-1} A * B = A^{-1} C$$

$$B = A^{-1} C$$

Para obtener la matriz de coeficientes (b0, b1, b2., b3)

Obtenga la matriz inversa se A y multiplique por la matriz C