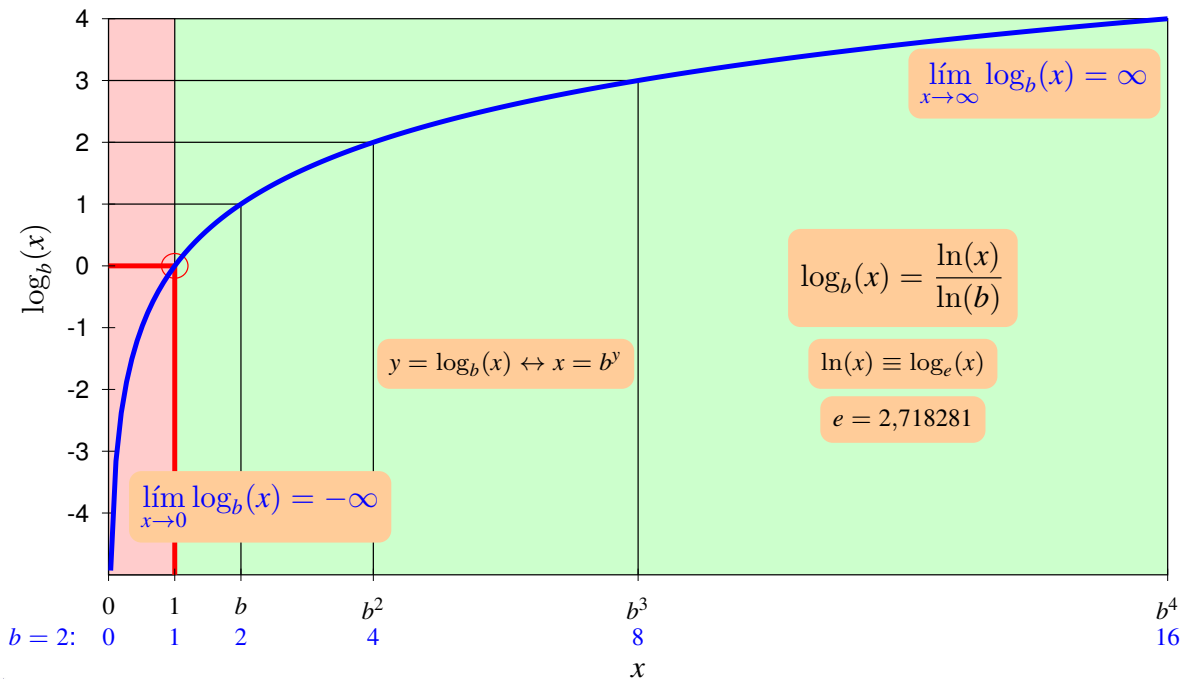


Propiedades de la función logaritmo: $\log_b(x)$



Propiedades de la función logaritmo: $\log(x)$

$$\log(1) = 0 \quad \log(x > 1) > 0 \quad \log(x < 1) < 0$$

$$\log\left(\frac{1}{a}\right) = -\log(a)$$

$$\log(a \times b) = \log(a) + \log(b)$$

$$\log\left(\frac{a}{b}\right) = \log(a) - \log(b)$$

$$\log\left(\frac{a}{b}\right) = \log(a) - \log(b)$$

Revisión conceptos estadísticos

- Distribuciones condicionales / conjuntas / marginales

$$f_{X|Y}(x|y) = \frac{f_{X,Y}(x,y)}{f_Y(y)} \quad f_{Y|X}(y|x) = \frac{f_{X,Y}(x,y)}{f_X(x)} \quad f_{X,Y}(x,y) = f_{X|Y}(x|y) f_Y(y) = f_{Y|X}(y|x) f_X(x)$$

$$p_{X|Y}(x_i|y_j) = \frac{p_{X,Y}(x_i, y_j)}{p_Y(y_j)} \quad p_{Y|X}(y_j|x_i) = \frac{p_{X,Y}(x_i, y_j)}{p_X(x_i)}$$
$$p_{X,Y}(x_i, y_j) = p_{X|Y}(x_i|y_j) p_Y(y_j) = p_{Y|X}(y_j|x_i) p_X(x_i)$$

- Independencia estadística

$$f_{X|Y}(x|y) = f_X(x) \quad f_{Y|X}(y|x) = f_Y(y) \quad f_{X,Y}(x,y) = f_X(x) \times f_Y(y)$$
$$p_{X|Y}(x_i|y_j) = p_X(x_i) \quad p_{Y|X}(y_j|x_i) = p_Y(y_j) \quad p_{X,Y}(x_i, y_j) = p_X(x_i) \times p_Y(y_j)$$

Revisión conceptos estadísticos (II)

- Distribuciones conjuntas / marginales

$$\int_{-\infty}^{\infty} f_{X,Y}(x,y) dy = f_X(x) \quad \int_{-\infty}^{\infty} f_{X,Y}(x,y) dx = f_Y(y)$$

$$\sum_{j=0}^{M_Y-1} p_{X,Y}(x_i, y_j) = p_X(x_i) \quad \sum_{i=0}^{M_X-1} p_{X,Y}(x_i, y_j) = p_Y(y_j)$$

- Probabilidad total de una variable aleatoria

$$\int_{-\infty}^{\infty} f_X(x) dx = 1 \quad \sum_{i=0}^{M_X-1} p_X(x_i) = 1$$
$$\int_{-\infty}^{\infty} f_{X|Y}(x|y) dx = 1 \quad \sum_{i=0}^{M_X-1} p_{X|Y}(x_i|y_j) = 1$$