

- Proprietà dei logaritmi ($x, y, a, b \in \mathbb{R}^+$, $a, b \neq 1$);

1. $a^{\log_a x} = x$
2. $\log_a (a^x) = x$
3. $\log_a 1 = 0;$
4. $\log_a(xy) = \log_a x + \log_a y$
5. $\log_a \left(\frac{x}{y}\right) = \log_a x - \log_a y$
6. $\log_a (x^\alpha) = \alpha \cdot \log_a x, \quad \forall \alpha \in \mathbb{R};$
7. $\log_a x = \frac{1}{\log_x a} = -\log_{\frac{1}{a}} x, \quad x \neq 1$
8. $\log_b x = \frac{\log_a x}{\log_a b}$

- Proprietà del modulo o valore assoluto;

1. $|x| \geq 0, \quad \forall x \in \mathbb{R};$
2. $|x| = 0 \Leftrightarrow x = 0;$
3. $|-x| = |x|, \quad \forall x \in \mathbb{R};$
4. $|x| = \sqrt{x^2}, \quad \forall x \in \mathbb{R};$
5. $|x \cdot y| = |x| \cdot |y|, \quad \forall x, y \in \mathbb{R};$
6. $|x/y| = |x|/|y|, \quad \forall x, y \in \mathbb{R}, y \neq 0;$
7. $|x + y| \leq |x| + |y|, \quad \forall x, y \in \mathbb{R};$
8. $||x| - |y|| \leq |x - y|, \quad \forall x, y \in \mathbb{R};$

- Somma di progressione aritmetica;

$$\sum_{k=1}^n k = \frac{n(n+1)}{2}$$

- Somma di progressione geometrica;

$$\sum_{k=0}^n q^k = \frac{1 - q^{n+1}}{1 - q}, \quad q \neq 1$$