



FÓRMULAS ÁLGEBRA BÁSICA

REGLAS DE LA ARTIMÉTICA

ASOCIATIVA	$a(bc) = (ab)c$
CONMUTATIVA	$a + b = b + a$ y $ab = ba$
DISTRIBUTIVA	$a(b + c) = ab + ac$

OPERACIONES BÁSICAS

$$\frac{a}{\left(\frac{b}{c}\right)} = \frac{ac}{b} \qquad \frac{a+b}{c} = \frac{a}{c} + \frac{b}{c}$$

$$\frac{\left(\frac{a}{b}\right)}{\left(\frac{c}{d}\right)} = \frac{ad}{bc} \qquad \frac{a-b}{c-d} = \frac{b-a}{d-c}$$

$$a\left(\frac{b}{c}\right) = \frac{ab}{c} \qquad \frac{a}{b} + \frac{c}{d} = \frac{ad+bc}{bd}$$

$$\frac{\left(\frac{a}{b}\right)}{c} = \frac{a}{bc} \qquad \frac{a}{b} - \frac{c}{d} = \frac{ad-bc}{bd}$$

$$\frac{ab+ac}{a} = b+c, a \neq 0$$

OPERACIONES CON RADICALES

$$\sqrt[n]{a} = a^{\frac{1}{n}} \qquad \sqrt[n]{\sqrt[n]{a}} = \sqrt[n^2]{a}$$

$$\sqrt[n]{a^n} = |a|, n = 2k \qquad \sqrt[n]{ab} = \sqrt[n]{a} \sqrt[n]{b}$$

$$\sqrt[n]{a^n} = a, n = 2k+1 \qquad \sqrt[n]{\frac{a}{b}} = \frac{\sqrt[n]{a}}{\sqrt[n]{b}}$$

VALOR ABSOLUTO

$$|a| = \begin{cases} a & \text{si } a \geq 0 \\ -a & \text{si } a < 0 \end{cases} \qquad |a| = |-a|$$

$$|a| \geq 0 \qquad |ab| = |a||b|$$

$$\left|\frac{a}{b}\right| = \frac{|a|}{|b|} \qquad \text{DESIGUALDAD DEL TRIÁNGULO:}$$

$$|a+b| \leq |a| + |b|$$

LEYES DE LOS EXPONENTES

$$a^n a^m = a^{n+m} \qquad (a^n)^m = a^{nm}$$

$$(ab)^n = a^n b^n \qquad a^0 = 1, a \neq 0$$

$$\frac{a^n}{a^m} = a^{n-m} = \frac{1}{a^{m-n}} \qquad \left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

$$\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n = \frac{b^n}{a^n} \qquad \frac{1}{a^{-n}} = a^n$$

$$(a)^{\frac{n}{m}} = (a^{\frac{1}{m}})^n = (a^n)^{\frac{1}{m}} \qquad a^{-n} = \frac{1}{a^n}$$

FÓRMULA GENERAL

Para resolver ecuaciones cuadráticas

$$ax^2 + bx + c = 0$$

utilizamos la fórmula general

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

FÓRMULAS DE FACTORIZACIÓN

$$x^2 - a^2 = (x+a)(x-a)$$

$$x^2 + 2ax + a^2 = (x+a)^2$$

$$x^2 - 2ax + a^2 = (x-a)^2$$

$$x^2 + (a+b)x + ab = (x+a)(x+b)$$

$$x^3 + 3ax^2 + 3a^2x + a^3 = (x+a)^3$$

$$x^3 - 3ax^2 + 3a^2x - a^3 = (x-a)^3$$

$$x^3 + a^3 = (x+a)(x^2 - ax + a^2)$$

$$x^3 - a^3 = (x-a)(x^2 + ax + a^2)$$