TABLA de ALGEBRA   Por: Fernando Valdés M ©,   UTP, Pereira

1 $a^0 = 1$

2 $1^n = 1$

3 $a^n a^m = a^{m+n}$

4 $\dfrac{a^n}{a^m} = a^{n-m}$

5 $(ab)^n = a^n b^n$

6 $\left(\dfrac{a}{b}\right)^n = \dfrac{a^n}{b^n}$

7 $a^{-n} = \dfrac{1}{a^n}$

8 $\left(\dfrac{a}{b}\right)^{-n} = \left(\dfrac{b}{a}\right)^n$

9 $(a^n)^m = a^{nm}$

10 $(a+b)^2 = a^2 + 2ab + b^2$

11 $a^{\frac{n}{m}} = \sqrt[m]{a^n}$

12 $\sqrt[n]{ab} = \sqrt[n]{a}\,\sqrt[n]{b}$

13 $\sqrt[n]{\left(\dfrac{a}{b}\right)} = \dfrac{\sqrt[n]{a}}{\sqrt[n]{b}}$

14 $\sqrt[m]{\sqrt[n]{a}} = \sqrt[nm]{a}$

15 $(\sqrt[m]{a})^n = \sqrt[m]{a^n}$

16 $\sqrt[m]{a^n} = a^{\frac{n}{m}}$

17 $(a+b)^3 = a^3 + 3a^2 b + 3ab^2 + b^3$

18 $a - b = (\sqrt{a} - \sqrt{b})(\sqrt{a} + \sqrt{b})$

19 $a^2 - b^2 = (a-b)(a+b)$

20 $(a-b)^3 = a^3 - 3a^2 b + 3ab^2 - b^3$

21 $e^{\ln(x)} = x$

22 $\ln(ab) = \ln(a) + \ln(b)$

23 $\ln\left(\dfrac{a}{b}\right) = \ln(a) - \ln(b)$

24 $\ln(a^n) = n\ln(a)$

25 $\log_b(x) = \dfrac{\log_k(x)}{\log_k(b)}$

26 $\log_b(a) = \dfrac{1}{\log_a(b)}$

27 $a^x = b^{\frac{x}{\log_a(b)}}$

28 $\ln(x + \sqrt{x^2 - 1}) \longrightarrow \; -\ln(x - \sqrt{x^2 - 1})$

29 $a^3 - b^3 = (a-b)(a^2 + ab + b^2); \quad a^3 + b^3 = (a+b)(a^2 - ab + b^2)$

30 $a^4 + a^2 b^2 + b^4 = (a^2 + ab + b^2)(a^2 - ab + b^2)$

31 $a^n - b^n = (a-b)(a^{n-1} + a^{n-2}b + \cdots + b^{n-1}) = (a-b)\displaystyle\sum_{k=0}^{n-1} a^{n-1-k} b^k$

32 $a^n - b^n = (a+b)(a^{n-1} - a^{n-2}b + \cdots - b^{n-1})$, si n es par

33 $a^n + b^n = (a+b)(a^{n-1} - a^{n-2}b + \cdots - b^{n-1})$, si n es impar

34 $(a+b)^2 - (a-b)^2 = 4ab$

35 $(a+b)^2 + (a-b)^2 = 2(a^2 + b^2)$

36 $(a+b)^4 - (a-b)^4 = 8ab(a^2 + b^2)$

37 $(x^2 + x + 1)(x^2 - x + 1) = x^4 + x^2 + 1$

38 $(a^2 + b^2)(x^2 + y^2) = (ax + by)^2 + (ay - bx)^2$

39 $a^3 + b^3 + c^3 - 3abc = (a+b+c)(a^2 + b^2 + c^2 - ab - bc - ca)$

40 $a^3 + b^3 + c^3 - 3abc = \dfrac{1}{2}(a+b+c)[(a-b)^2 + (b-c)^2 + (c-a)^2]$

41 $a^4 + b^4 = (a^2 + b^2 + \sqrt{2}ab)(a^2 + b^2 - 2\sqrt{2}ab)$