

IDENTIDADES TRIGONOMÉTRICAS.

1. $\sin^2 x + \cos^2 x = 1$

2. $\sec^2 x = 1 + \tan^2 x$

3. $\csc^2 x = 1 + \cot^2 x$

4. $\sin 2x = 2 \sin x \cos x$

5. $\cos 2x = \cos^2 x - \sin^2 x = 1 - 2 \sin^2 x = 2 \cos^2 x - 1$

6. $\sin^2 x = \frac{1}{2}(1 - \cos 2x)$

7. $\cos^2 x = \frac{1}{2}(1 + \cos 2x)$

8. $\sin(x \pm y) = \sin x \cos y \pm \cos x \sin y$

9. $\cos(x \pm y) = \cos x \cos y \mp \sin x \sin y$

10. $\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y}$

11. $\tan x = \frac{\sin x}{\cos x}$

12. $\cot x = \frac{\cos x}{\sin x}$

13. $\sec x = \frac{1}{\cos x}$

14. $\csc x = \frac{1}{\sin x}$

15. $\sin\left(\frac{x}{2}\right) = \pm \left(\frac{1 - \cos x}{2}\right)^{1/2}$

16. $\cos\left(\frac{x}{2}\right) = \pm \left(\frac{1 + \cos x}{2}\right)^{1/2}$

17. $\tan\left(\frac{x}{2}\right) = \frac{\sin x}{1 + \cos x} = \frac{1 - \cos x}{\sin x}$

18. $\cot\left(\frac{x}{2}\right) = \frac{1 + \cos x}{\sin x} = \frac{\sin x}{1 - \cos x}$

19. $\sin x = 2 \sin\left(\frac{x}{2}\right) \cos\left(\frac{x}{2}\right)$

20. $\cos x = \cos^2\left(\frac{x}{2}\right) - \sin^2\left(\frac{x}{2}\right)$

21. $\arcsin x + \arccos x = \frac{\pi}{2}$

22. $\arctan x + \operatorname{arccot} x = \frac{\pi}{2}$

LOGARITMOS Y EXPONENCIALES

1. $y = \lg_a x$ si y sólo si $a^y = x$

2. $\lg_a 1 = 0$

3. $\lg_a a = 1$

4. $\lg_a(x \cdot y) = \lg_a x + \lg_a y$

5. $\lg_a\left(\frac{x}{y}\right) = \lg_a x - \lg_a y$

6. $\lg_a(x^z) = z \lg_a x$

7. $a^{\lg_a x} = x$

8. $b^x = a^{x \lg_a b}$

9. $y = \ln x$ si y sólo si $e^y = x$, ($e \approx 2,71828$)

10. $\lg_a x = \frac{\lg_b x}{\lg_b a}$

ALGUNOS PRODUCTOS NOTABLES

1. $(a \pm b)^2 = a^2 \pm 2ab + b^2$

2. $(a \pm b)^3 = a^3 \pm 3a^2b + 3ab^2 \pm b^3$

3. $(a \pm b)^4 = a^4 \pm 4a^3b + 6a^2b^2 \pm 4ab^3 + b^4$

4. $(a \pm b)^5 = a^5 \pm 5a^4b + 10a^3b^2 \pm 10a^2b^3 + 5ab^4 \pm b^5$

5. $(a + b)(a - b) = a^2 - b^2$

6. $(a \pm b)(a^2 \mp ab + b^2) = a^3 \pm b^3$

7. $(\sqrt[3]{x} - \sqrt[3]{y})(\sqrt[3]{x^2} + \sqrt[3]{xy} + \sqrt[3]{y^2}) = x - y$