

## TALLER SOBRE IDENTIDADES - 10° - 2015

$$\text{Sen}^2\theta + \text{Cos}^2\theta \equiv 1 \dots\dots \text{Sec}^2\theta - 1 \equiv \text{Tan}^2\theta \dots\dots \text{Csc}^2\theta - 1 \equiv \text{Cot}^2\theta \dots\dots \text{Sen}\theta \cdot \text{Csc}\theta \equiv 1 \dots\dots \text{Cos}\theta \cdot \text{Sec}\theta \equiv 1$$

$$\text{Tan}\theta \cdot \text{Cot}\theta \equiv 1 \dots\dots \frac{\text{Sen}\theta}{\text{Cos}\theta} \equiv \text{Tan}\theta \dots\dots \frac{\text{Cos}\theta}{\text{Sen}\theta} \equiv \text{Cot}\theta \dots\dots \text{Sen}\theta \equiv \frac{1}{\text{Csc}\theta} \dots\dots \text{Cos}\theta \equiv \frac{1}{\text{Sec}\theta} \dots\dots \text{Tan}\theta \equiv \frac{1}{\text{Cot}\theta}$$

$$\text{Sen}(A \pm B) = \text{Sen}A \cdot \text{Cos}B \pm \text{Sen}B \cdot \text{Cos}A \dots\dots \text{Cos}(A \pm B) = \text{Cos}A \cdot \text{Cos}B \mp \text{Sen}A \cdot \text{Sen}B$$

$$\text{Tan}(A \pm B) = \frac{\text{Tan}A \pm \text{Tan}B}{1 \mp \text{Tan}A \cdot \text{Tan}B}$$

$$\text{Sen}2A = 2 \cdot \text{Sen}A \cdot \text{Cos}A \dots\dots \text{Cos}2A = \text{Cos}^2A - \text{Sen}^2A \dots\dots \text{Tan}2A = \frac{2\text{Tan}A}{1 - \text{Tan}^2A}$$

$$\text{Sen}\frac{A}{2} = \sqrt{\frac{1 - \text{Cos}A}{2}} \dots\dots \text{Cos}\frac{A}{2} = \sqrt{\frac{1 + \text{Cos}A}{2}} \dots\dots \text{Tan}\frac{A}{2} = \sqrt{\frac{1 - \text{Cos}A}{1 + \text{Cos}A}}$$

Demstrar las siguientes identidades

1.  $\cos t \sec t = 1$

2.  $\tan x \cot x = 1$

3.  $\cos y \csc y = \cot y$

4.  $\cot x \sec x = \cos x$

5.  $\frac{\sec \theta}{\csc \theta} = \tan \theta$

6.  $\frac{\sec \theta}{\csc \theta} + \frac{\cos \theta}{\sec \theta} = 1$

7.  $\frac{\csc t}{\cot t + \tan t} = \cos t$

8.  $\tan x + \cot x = \sec^2 x \cot x$

9.  $\frac{1 + \sec \mu}{\cos \mu} = \frac{\cos \mu}{1 - \sec \mu}$

10.  $\frac{\csc \mu + 1}{\cot \mu} = \frac{1}{\sec \mu - \tan \mu}$

11.  $\frac{1 - \cos x}{1 + \cos x} = (\csc x - \cot x)^2$

12.  $\frac{1}{1 - \sec x} - \frac{1}{1 + \sec x} = 2 \tan x \sec x$

13.  $(1 - \cos^2 t) + (1 + \cos^2 t) = 1$

14.  $\cot^2 t \sec^2 t = \cos^2 t$

15.  $\frac{1 + \tan^2 x}{\csc^2 x} = \tan^2 x$

16.  $\sec^4 \theta - 1 - \sec^2 \theta \tan^2 \theta = \tan^2 \theta$

17.  $\frac{\cos \theta}{1 + \sec \theta} + \tan \theta = \sec \theta$

18.  $\frac{\tan^2 x}{\sec x + 1} = \frac{1 - \cos x}{\cos x}$

19.  $(\csc t + \cot t)^2 = \frac{1 + \cos t}{1 - \cos t}$

20.  $2 \sec^2 y - 1 = \frac{1 + \sec^2 y}{\cos^2 y}$

21.  $\cot x + \frac{\sec x}{1 + \cos x} = \csc x$

22.  $\sec x + \cos x = \frac{\sec x + \csc x}{\tan x + \cot x}$

$$23. (\csc x - \operatorname{sen} x)(\sec x - \cos x) = \frac{1}{\tan x + \cot x}$$

$$25. \frac{1}{1 + \cos^2 \alpha} + \frac{1}{1 + \sec^2 \alpha} = 1$$

$$27. \frac{\tan x - \tan y}{\cot x - \cot y} = -\tan x \cdot \tan y$$

$$29. \operatorname{sen} x + \frac{\pi}{2} = \cos x$$

$$31. \operatorname{Cos} 2x \equiv 2\operatorname{Cos}^2 x - 1$$

$$33. \frac{\cos x - \cos y}{\cos y - \operatorname{sen} x} = \frac{\cos y + \operatorname{sen} x}{\cos x + \operatorname{sen} y}$$

$$35. \sec 2t = \frac{\sec^2 t}{2 - \sec^2 t}$$

$$37. \operatorname{Cos} 2x \equiv 1 - 2\operatorname{Sen}^2 x$$

$$39. \operatorname{Tan}(\pi/2 + \Theta) \equiv -\operatorname{Cot} \Theta$$

$$41. \operatorname{Csc}(\pi - \alpha) \equiv \operatorname{Csc} \alpha$$

$$43. \frac{\operatorname{Sen} 2A}{\operatorname{Cos}^2 A} \equiv 2 \operatorname{Tan} A$$

$$45. \operatorname{Cot} \frac{\theta}{2} \equiv \frac{\operatorname{Sen} \theta}{1 + \operatorname{Cos} \theta}$$

$$24. \csc x + \cot x = \frac{\operatorname{sen} x}{1 - \cos x}$$

$$26. (1 + \tan \theta)^2 + (1 + \cot \theta)^2 = (\sec \theta + \csc \theta)^2$$

$$28. \frac{\tan x + \tan y}{\cot x + \cot y} = \frac{\tan x \tan y - 1}{1 - \cot x \cot y}$$

$$30. \frac{1 + \operatorname{sen} 2x + \cos 2x}{1 + \operatorname{sen} 2x - \cos 2x} = \cot x$$

$$32. 1 + \operatorname{Sen} 2x \equiv (\operatorname{Sen} x + \operatorname{Cos} x)^2$$

$$34. \frac{\cos^2 x - \cos^2 y}{\cot^2 x - \cot^2 y} = \operatorname{sen}^2 x \operatorname{sen}^2 y$$

$$36. \csc 2x - \cot 2x = \tan x$$

$$38. \operatorname{Sen}(\pi/2 + \alpha) \equiv \operatorname{Cos} \alpha$$

$$40. \operatorname{Cos}(\pi - \beta) \equiv -\operatorname{Cos} \beta$$

$$42. \operatorname{Tan}(\pi/4 + \alpha) \operatorname{Tan}(\pi/4 - \alpha) \equiv 1$$

$$44. \operatorname{Tan} \frac{\theta}{2} \equiv \frac{1 - \operatorname{Cos} \theta}{\operatorname{Sen} \theta}$$

$$46. \frac{\operatorname{Sen}(x+y)}{\operatorname{Cos} x \operatorname{Cos} y} \equiv \operatorname{Tan} x + \operatorname{Tan} y$$

Otros

$$a) \sin \theta \sec \theta = \tan \theta$$

$$b) \sin \theta \cot \theta = \cos \theta$$

$$c) \sin \theta = \tan \theta \cos \theta$$

$$d) 2\sec^2 \theta - 1 = \tan^2 \theta + \sec^2 \theta$$

$$e) \sec^2 \theta - 3 = \tan^2 \theta - 2$$

$$f) \frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta} = \sec \theta \csc \theta$$

$$g) \frac{\sec \theta}{\sin \theta} - \frac{\sin \theta}{\cos \theta} = \cot \theta$$

$$h) \frac{1 + \tan^2 \theta}{\csc^2 \theta} = \tan^2 \theta$$

$$i) \frac{1}{1 - \cos \theta} + \frac{1}{1 + \cos \theta} = 2 \csc^2 \theta$$

$$j) \frac{1 - \tan^2 \theta}{\tan \theta} = \cot \theta - \tan \theta$$

$$k) \tan \theta \cos \theta \csc \theta = 1$$

$$l) \frac{\sec \theta - 1}{\sec \theta + 1} = \frac{1 - \cos \theta}{1 + \cos \theta}$$

$$m) \frac{1 + 3 \cos \phi}{\cos \phi + 1} = \frac{1 + 2 \cos \phi - 3 \cos^2 \phi}{\sin^2 \phi}$$

$$n) \frac{\sin^3 \theta + \cos^3 \phi}{2 \sin^2 \theta - 1} = \frac{1 - \cos \theta}{1 + \cos \theta}$$

