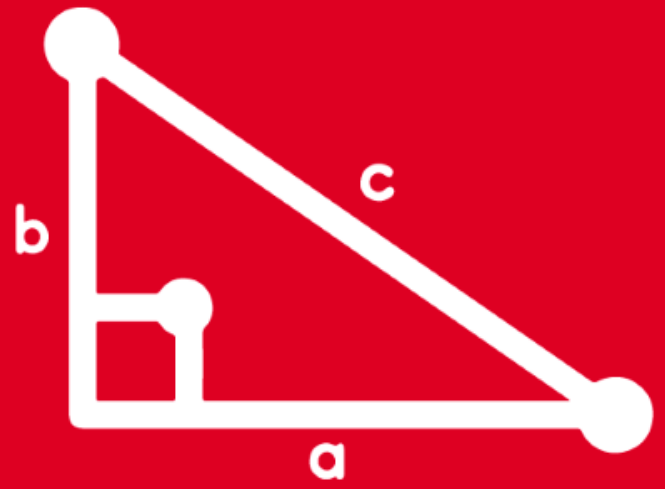
TRIGONOMETRY

TOMO VII

3rd
SECONDARY

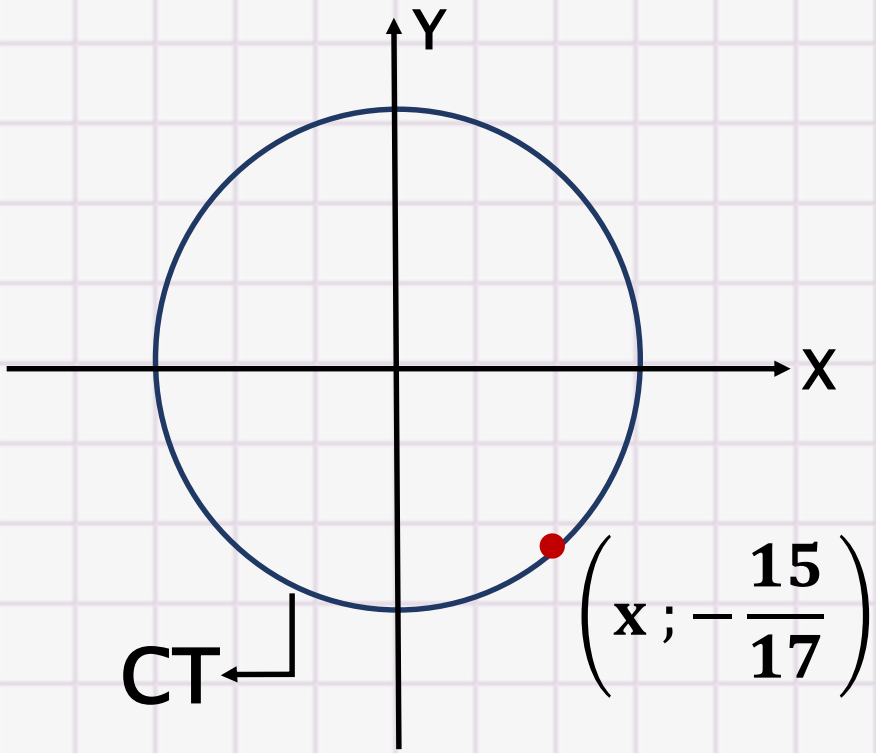


FEEDBACK

SACO OLIVEROS

HELICO-PRACTICA 1

1) En el gráfico, calcule el valor de x .



RESOLUCIÓN

Aplicamos : $x^2 + y^2 = 1$

$$x^2 + \left(-\frac{15}{17}\right)^2 = 1$$

$$x^2 + \frac{225}{289} = 1$$

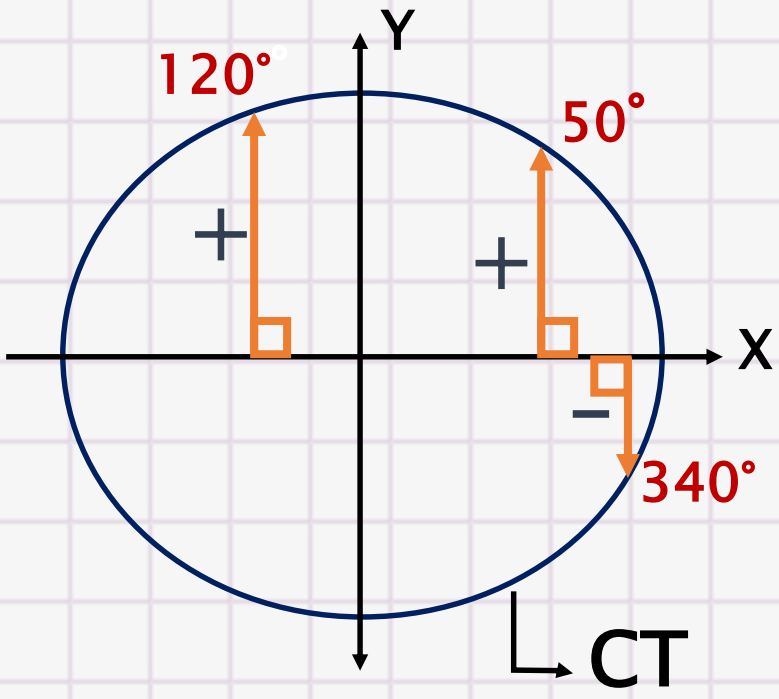
$$x^2 = \frac{64}{289}$$

$$x = \frac{8}{17}$$

HELICO-PRACTICE 2

2) Ubique en la CT : sen340°, sen120° y sen50° , luego indique el de mayor valor.

RESOLUCIÓN



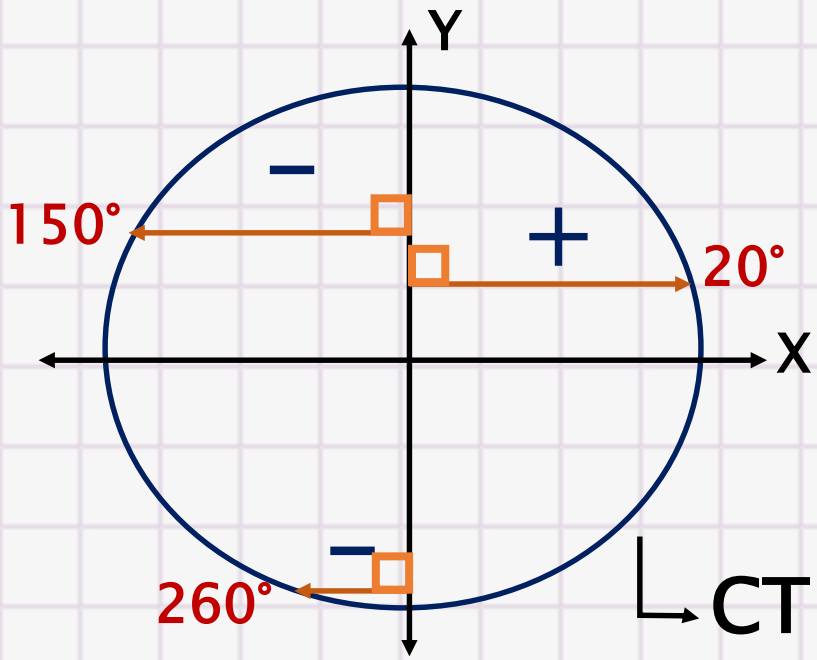
$\text{sen}120° > \text{sen}50° > \text{sen}340°$

∴ Mayor valor = $\text{sen}120°$

HELICO-PRACTICE 3

3) Ubique en la CT : cos20°, cos150° y cos260° e indique el menor valor.

Resolución:



$\cos 20° > \cos 260° > \cos 150°$

$\therefore$ Menor valor = $\cos 150°$

HELICO-PRACTICE 4

4) Reduzca $M = \cos\theta - \operatorname{sen}\theta \cdot \cot\theta$

Resolución:

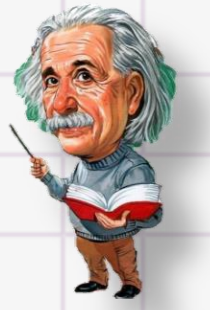
$$\cot\theta = \frac{\cos\theta}{\operatorname{sen}\theta}$$

Aplicamos identidad por división:

$$M = \cos\theta - \cancel{\operatorname{sen}\theta} \cdot \frac{\cos\theta}{\cancel{\operatorname{sen}\theta}}$$

$$M = \cos\theta - \cos\theta$$

$$M = 0$$



HELICO-PRACTICE 5

5) Simplifique P = $sec^3\theta$. $cos^2\theta$. senθ . cotθ

Resolución:

Agrupamos en forma conveniente, luego aplicamos identidades recíprocas y por división:

$$P = (\sec\theta.\cos\theta)^2 .\sec\theta .\cancel{\operatorname{sen}\theta} .\frac{\cos\theta}{\cancel{\operatorname{sen}\theta}}$$

$$P = (1)^2 . (\sec\theta.\cos\theta)$$

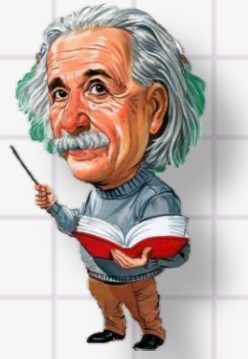
$$P = (1) . (1)$$

$$P = 1$$

Recordar:

$\cos\theta.\sec\theta = 1$

$$\cot\theta = \frac{\cos\theta}{\operatorname{sen}\theta}$$



HELICO-PRACTICE 6

6) Simplifique $E = senx\,(1 + cscx) - cosx.tanx$

Resolución:

$$E = senx + senx.cscx - cosx.\frac{senx}{cosx}$$

$$E = senx + 1 - senx$$

$$\boxed{E = 1}$$

Recordar:

$senx.cscx = 1$

HELICO-PRACTICE 7

7) Demuestre que: $\sec^5 x.\cos^3 x - \tan^5 x.\cot^3 x = 1$

Resolución:

Agrupamos y luego aplicamos identidades recíprocas y pitagóricas:

$$E = (\sec x \,.\, \cos x)^3 \sec^2 x - (\tan x \,.\, \cot x)^3 \tan^2 x$$

$$E = (1)^3 \sec^2 x - (1)^3 \tan^2 x$$

$$E = \sec^2 x - \tan^2 x = 1$$

Lqqd : $\sec^5 x.\cos^3 x + \tan^5 x.\cot^3 x = 1$

HELICO-PRACTICE 8

8) Simplifique $P = \left(\frac{\csc^3\theta}{1+\cot^2\theta}\right)\operatorname{sen}\theta$

Resolución:

Aplicamos identidades pitagóricas y recíprocas:

$$P = \left(\frac{\csc^3\theta}{\csc^2\theta}\right)\operatorname{sen}\theta$$

$$P = \csc\theta \,.\, \operatorname{sen}\theta$$

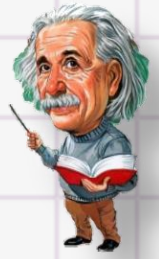
$$P = 1$$

Recordar

$$\csc^2\theta - \cot^2\theta = 1$$

$$\csc^2\theta = 1 + \cot^2\theta$$

$$\operatorname{sen}\theta.\csc\theta = 1$$



HELICO-PRACTICE 9

9) Simplifique $E = (\text{sen}\theta + \cos\theta \cdot \cot\theta)\text{sen}\theta$

Resolución:

$E = \text{sen}\theta \cdot \text{sen}\theta + \cos\theta \cdot \cot\theta \cdot \text{sen}\theta$

$E = \text{sen}^2\theta + \cos\theta \cdot \frac{\cos\theta}{\text{sen}\theta} \cdot \text{sen}\theta$

$E = \text{sen}^2\theta + \cos^2\theta$

$E = 1$

Recordar:

$$\cot\theta = \frac{\cos\theta}{\text{sen}\theta}$$

HELICO-PRACTICE 10

10) Al copiar de la pizarra la expresión $\sec x - \tan x - 1$, un estudiante cometió un error y escribió $\csc x - \cot x - 1$. Calcule la razón entre lo que estaba escrito en la pizarra y lo que copió el alumno.

Resolución:

$$E = \frac{\sec x - \tan x - 1}{\csc x - \cot x - 1}$$

$$E = \frac{\frac{1}{\cos x} - \frac{\operatorname{sen} x}{\cos x} - \frac{\cos x}{\cos x}}{\frac{1}{\operatorname{sen} x} - \frac{\cos x}{\operatorname{sen} x} - \frac{\operatorname{sen} x}{\operatorname{sen} x}}$$

$$E = \frac{\frac{1 - \operatorname{sen} x - \cos x}{\cos x}}{\frac{1 - \cos x - \operatorname{sen} x}{\operatorname{sen} x}}$$

$$E = \frac{\operatorname{sen} x}{\cos x}$$

$$\therefore E = \tan x$$


SACO
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