



TRIGONOMETRY

TOMO 6

2nd
SECONDARY

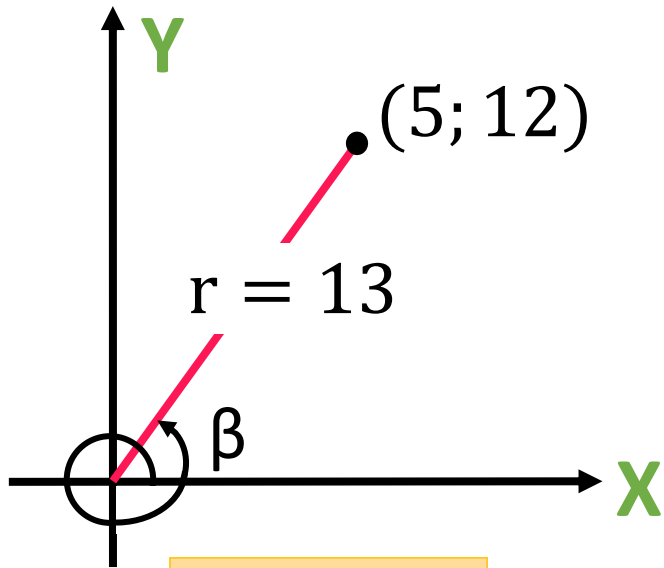
REVIEW



HELICOPRACTICE 1

Del gráfico, efectúe

$$N = \csc\beta - \cot\beta$$



Recordar:

$$\csc\beta = \frac{r}{y}$$

$$\cot\beta = \frac{x}{y}$$



RESOLUCIÓN

- Calculando el radio vector

$$r = \sqrt{(x)^2 + (y)^2}$$

$$r = \sqrt{\underbrace{5^2}_{25} + \underbrace{12^2}_{144}} \quad \Rightarrow \quad r = \sqrt{169}$$

$$\Rightarrow r = 13$$

$$x = 5$$

$$y = 12$$

$$r = 13$$

Piden: $N = \csc\beta - \cot\beta$

$$\Rightarrow N = \frac{13}{12} - \frac{5}{12} \Rightarrow N = \frac{\overset{2}{\cancel{8}}}{\underset{3}{\cancel{12}}} \therefore N = \frac{2}{3}$$

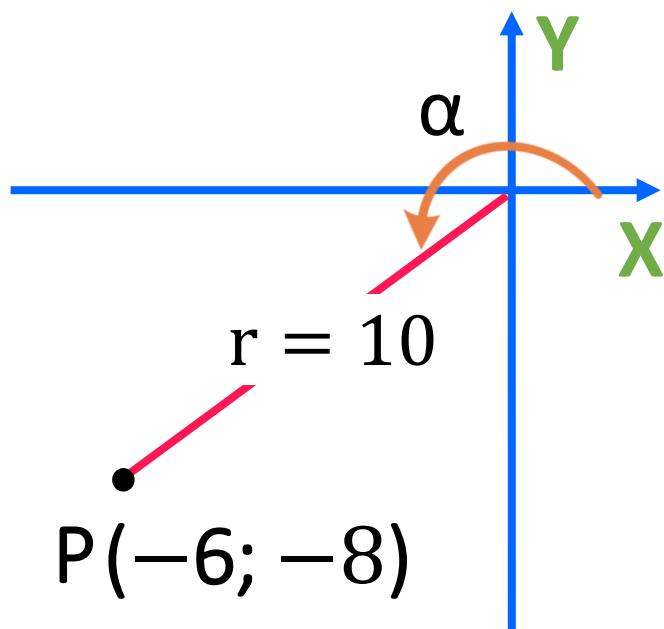
$$N = \frac{2}{3}$$



HELICOPRACTICE 2

Si el punto $P(-6; -8)$ pertenece al lado final del ángulo α en posición normal. Calcule $E = 16\cot\alpha - 18\sec\alpha$.

RESOLUCIÓN



- Calculando el radio vector

$$r = \sqrt{(x)^2 + (y)^2}$$

$$r = \sqrt{(-6)^2 + (-8)^2}$$

$$r = \sqrt{36 + 64}$$

$$r = \sqrt{100}$$

$$\Rightarrow r = 10$$

$x = -6$	$y = -8$	$r = 10$
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Piden: $E = 16\cot\alpha - 18\sec\alpha$

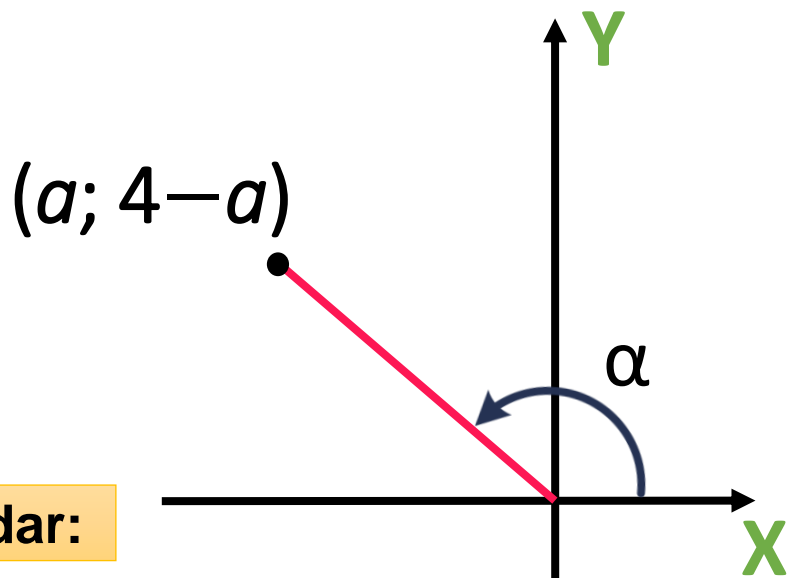
$$\Rightarrow E = \overset{2}{\cancel{16}} \left(\frac{-6}{\cancel{-8}_1} \right) - \overset{3}{\cancel{18}} \left(\frac{10}{\cancel{-6}_1} \right)$$

$$\Rightarrow E = 12 + 30$$

$$\therefore E = 42$$

HELICOPRACTICE 3

Del gráfico, calcule el valor de a si
 $\cot \alpha = -\frac{3}{4}$



Recordar:



$$\cot \alpha = \frac{x}{y}$$

RESOLUCIÓN

• Del gráfico:

$$\cot \alpha = \frac{a}{4 - a} \dots\dots\dots \text{(I)}$$

• Del dato:

$$\cot \alpha = -\frac{3}{4} \dots\dots\dots \text{(II)}$$

De (I) y (II):

$$\frac{a}{4 - a} = -\frac{3}{4} \rightarrow 4a = -12 + 3a$$

$$\therefore a = -12$$

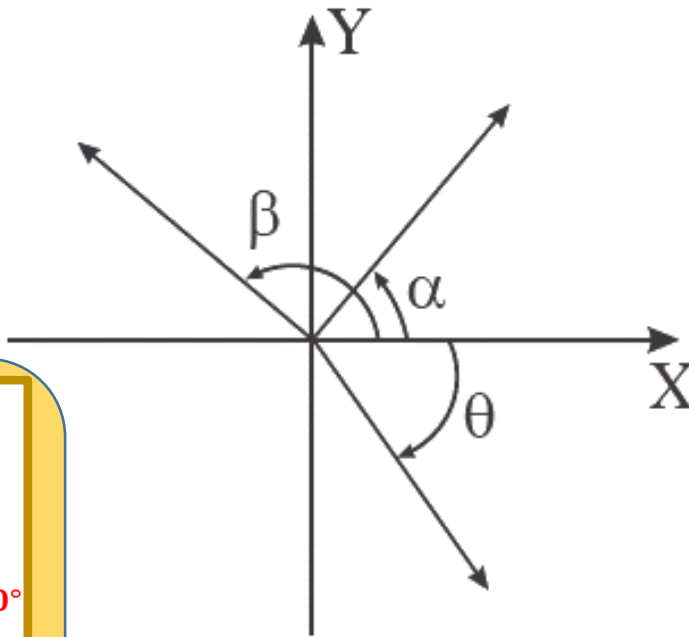
HELICOPRACTICE 4

Del gráfico, determine el signo de:

$$E = \frac{\csc\theta \cdot \sec\alpha}{\tan\beta}$$

Recordar:

IIC	IC
$\left. \begin{matrix} \text{sen} \\ \text{csc} \end{matrix} \right\} (+)$	Todas las RT son (+)
180°	0°
IIIIC	IVC
$\left. \begin{matrix} \tan \\ \cot \end{matrix} \right\} (+)$	$\left. \begin{matrix} \cos \\ \sec \end{matrix} \right\} (+)$
	270°



RESOLUCIÓN

- Del gráfico:

$$\alpha \in \text{IC}$$

$$\beta \in \text{IIC}$$

$$\theta \in \text{IVC}$$

- Piden signo:

$$E = \frac{\csc\theta \cdot \sec\alpha}{\tan\beta}$$

$$E = \frac{(-)(+)}{(-)} \rightarrow E = \frac{(-)}{(-)}$$

$$\therefore E = (+)$$

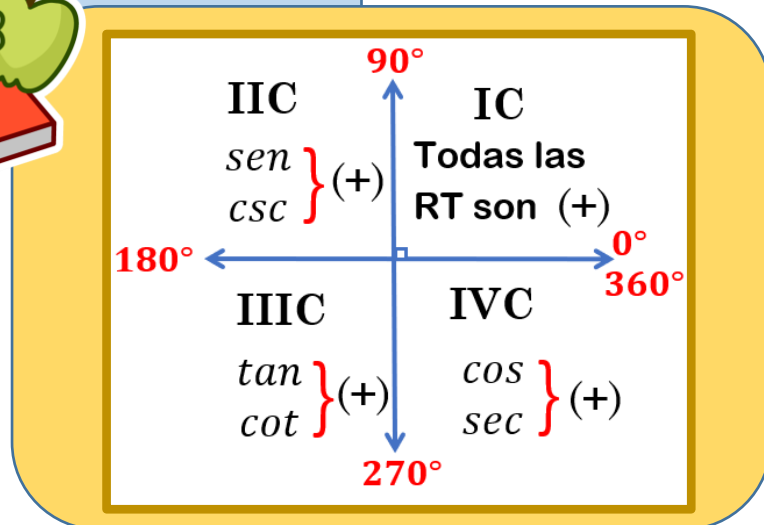
HELICOPRACTICE 5

Si $\alpha \in \text{IIC}$ y $\theta \in \text{IIIC}$, determine el signo de:

$$A = \frac{\text{sen}\alpha}{\tan\theta}$$

$$B = \tan^2\alpha \cdot \csc^3\theta$$

Recordar:



RESOLUCIÓN

- Piden signo:

$$A = \frac{\text{sen}\alpha}{\tan\theta}$$

$$A = \frac{(+)}{(+)}$$

$$A = (+)$$

$$B = \tan^2\alpha \cdot \csc^3\theta$$

$$B = (-)^2(-)^3$$

$$B = (+)(-)$$

$$B = (-)$$

$$\therefore (+); (-)$$

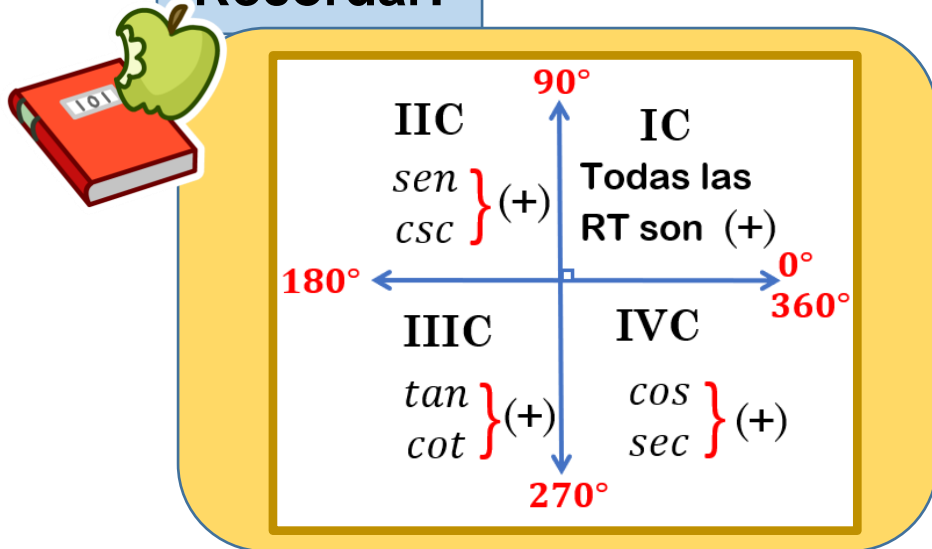
HELICOPRACTICE 6

Determine el signo en cada caso:

$$M = \tan 84^\circ \cdot \sin 179^\circ$$

$$N = \frac{\sec 220^\circ \cdot \csc 70^\circ}{\sin 280^\circ}$$

Recordar:



RESOLUCIÓN

- Piden signo:

$$M = \underbrace{\tan 84^\circ}_{IC} \cdot \underbrace{\sin 179^\circ}_{IIC} = (+)(+)$$

➡ $M = (+)$

$$N = \frac{\underbrace{\sec 220^\circ}_{IIC} \cdot \underbrace{\csc 70^\circ}_{IC}}{\underbrace{\sin 280^\circ}_{IVC}} = \frac{(-)(+)}{(-)}$$

➡ $N = (+)$

∴ **(+); (+)**

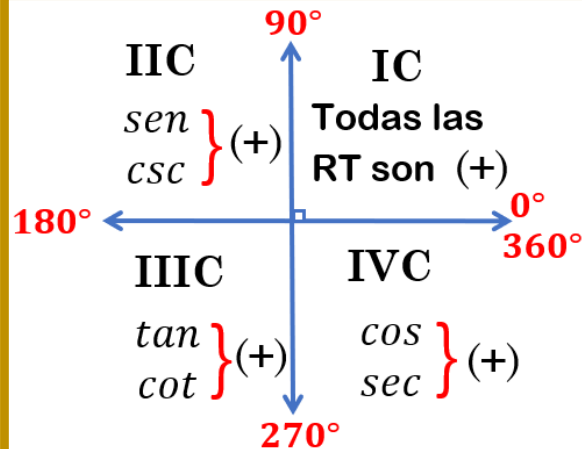


HELICOPRACTICE 7

Si $270^\circ < \theta < 360^\circ$, determine
le signo de

$$P = \cos\left(\frac{\theta}{2}\right) \cdot \tan\left(\frac{\theta}{3}\right)$$

Recordar:



RESOLUCIÓN

I) $270^\circ < \theta < 360^\circ \rightarrow 135^\circ < \underbrace{\left(\frac{\theta}{2}\right)}_{\text{IIC}} < 180^\circ$

$\rightarrow \cos\left(\frac{\theta}{2}\right) = (-)$

II) $270^\circ < \theta < 360^\circ \rightarrow 90^\circ < \underbrace{\left(\frac{\theta}{3}\right)}_{\text{IIC}} < 120^\circ$

$\rightarrow \tan\left(\frac{\theta}{3}\right) = (-)$

Piden signo de $P = \cos\left(\frac{\theta}{2}\right) \cdot \tan\left(\frac{\theta}{3}\right)$

$\rightarrow P = (-)(-)$

$\therefore P = (+)$



HELICOPRACTICE 8

Efectúe

$$W = (\csc 270^\circ + \sec 180^\circ)^2 (\sin 90^\circ + \cos 360^\circ)^3$$

RESOLUCIÓN

Usando las RT de ángulos cuadrantales:

$$W = ((-1) + (-1))^2 ((1) + (1))^3$$

$$W = (-2)^2 (2)^3$$

$$W = (4)(8)$$

$$\therefore W = 32$$

Recordar:

RT \ \angle	0°	90°	180°	270°	360°
sen	0	1	0	-1	0
cos	1	0	-1	0	1
tan	0	ND	0	ND	0
cot	ND	0	ND	0	ND
sec	1	ND	-1	ND	1
csc	ND	1	ND	-1	ND



HELICOPRACTICE 9

Calcule el valor de x si

$$2x \cos 360^\circ + 3 \csc 90^\circ = \sin 270^\circ - x \tan 180^\circ$$

RESOLUCIÓN

Usando las RT de ángulos cuadrantales:

$$2x \text{ (1)} + 3 \text{ (1)} = \text{(-1)} - \cancel{x \text{ (0)}}$$

$$2x + 3 = -1$$

$$2x = -4$$

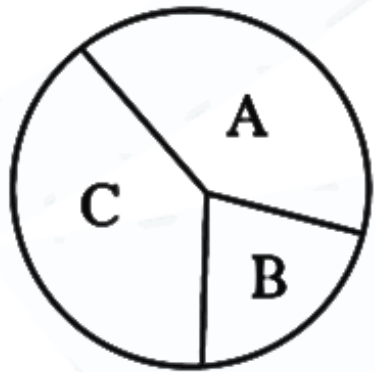
$$\therefore x = -2$$

Recordar:

RT \ α	0°	90°	180°	270°	360°
sen	0	1	0	-1	0
cos	1	0	-1	0	1
tan	0	ND	0	ND	0
cot	ND	0	ND	0	ND
sec	1	ND	-1	ND	1
csc	ND	1	ND	-1	ND

HELICOPRACTICE 10

A continuación se muestra la distribución de la memoria de un dispositivo USB con capacidad de 16GB.



A: archivos

B: música

C: espacio disponible

Donde:

$$A = (4\text{sen}90^\circ - 2\text{sen}270^\circ) \text{ GB}$$

$$B = (5\text{cos}360^\circ + 2\text{sec}180^\circ) \text{ GB}$$

Determine el espacio disponible del USB.

RESOLUCIÓN

Usando las RT de ángulos cuadrantales:

- $A = (4 \text{ (1)} - 2 \text{ (-1)}) \text{ GB}$

$$A = (4 + 2) \text{ GB} \rightarrow A = 6 \text{ GB}$$

- $B = (5 \text{ (1)} + 2 \text{ (-1)}) \text{ GB}$

$$B = (5 - 2) \text{ GB} \rightarrow B = 3 \text{ GB}$$

Piden: C: espacio disponible

$$\therefore C = 7 \text{ GB}$$