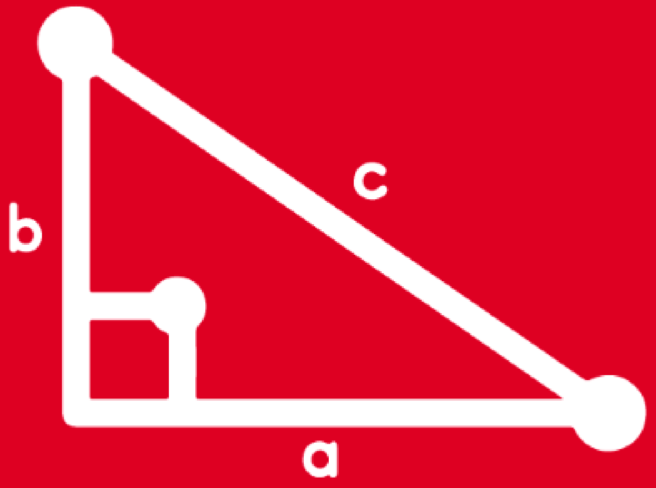
TRIGONOMETRY

TOMO 6

2nd
SECONDARY



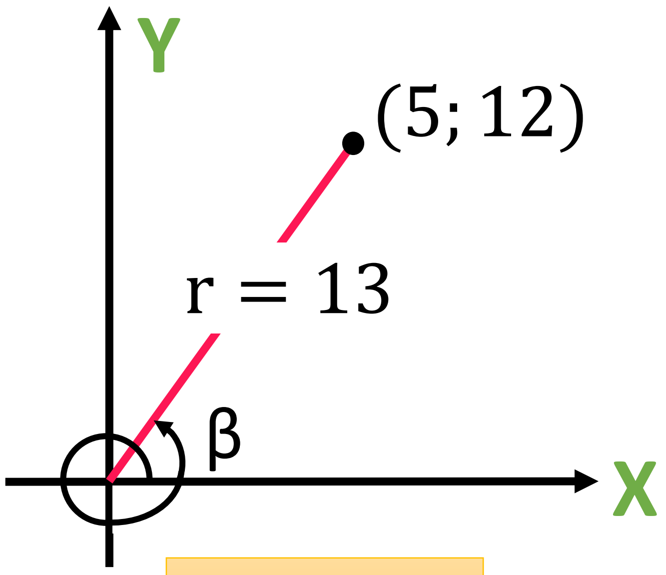
REVIEW

SACO OLIVEROS

HELICOPRACTICE 1

Del gráfico, efectúe

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



Recordar:

$\csc\beta = \dfrac{r}{y}$ $\qquad$ $\cot\beta = \dfrac{x}{y}$

RESOLUCIÓN

- Calculando el radio vector

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

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

$$\Rightarrow r = 13$$

x = 5	y = 12	r = 13

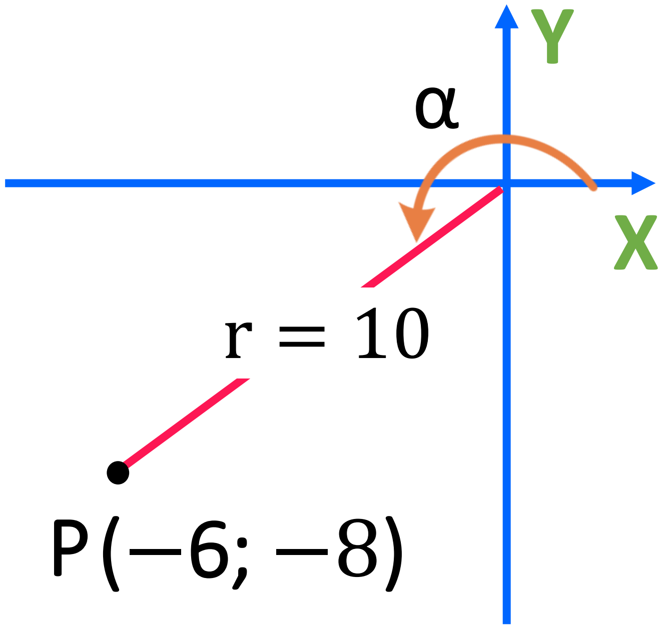
Calculamos: $N = \csc\beta - \cot\beta$

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

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

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

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

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

$$r = \sqrt{100}$$

$$r = 10$$

$x = -6$	$y = -8$	$r = 10$

Calculamos:

$E = 16\cot\alpha - 18\sec\alpha$

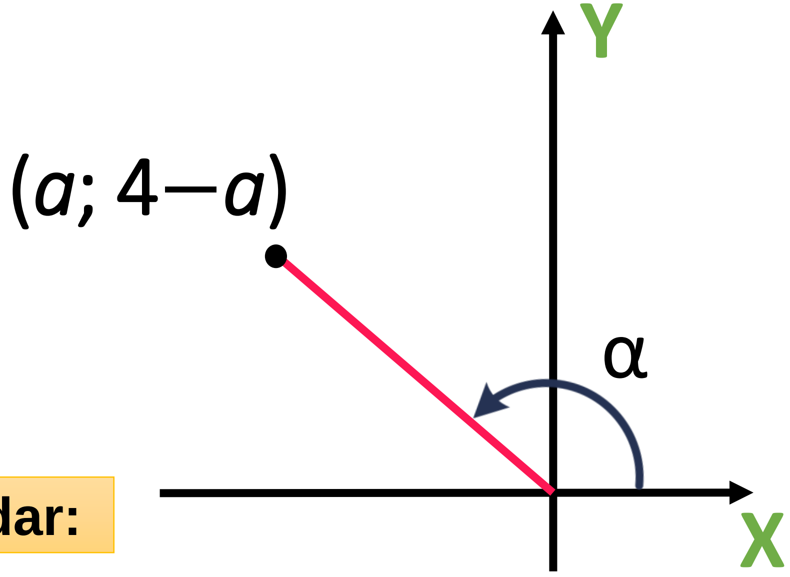
$$E = \overset{2}{\cancel{16}}\left(\frac{-6}{\underset{1}{\cancel{-8}}}\right) - \overset{3}{\cancel{18}}\left(\frac{10}{\underset{1}{\cancel{-6}}}\right)$$

$E = 12 + 30$ ∴ $\boxed{E = 42}$

HELICOPRACTICE 3

Del gráfico, calcule el valor de *a* si

$\cot\alpha = -\frac{3}{4}$



Recordar:

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

RESOLUCIÓN

- Del gráfico:

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

- Del dato:

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

De (I) y (II):

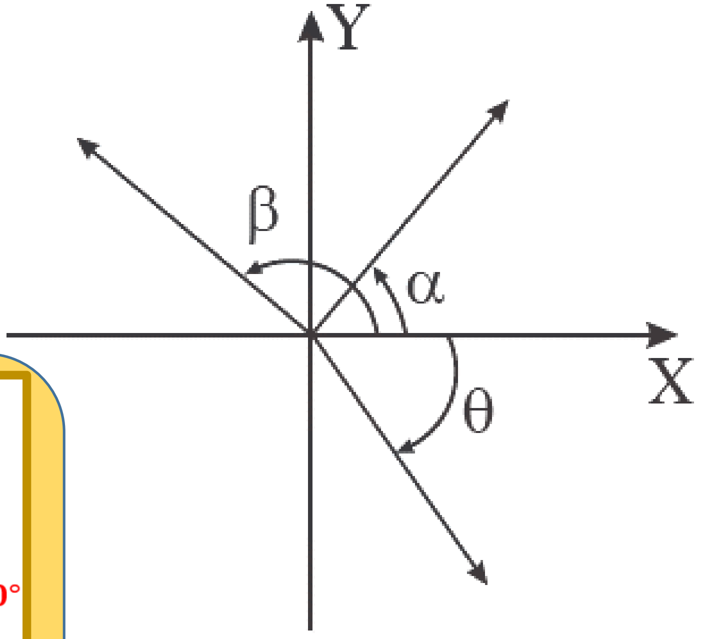
$$\frac{a}{4-a} = -\frac{3}{4} \Rightarrow 4a = -12 + 3a$$

$$\therefore \boxed{a = -12}$$

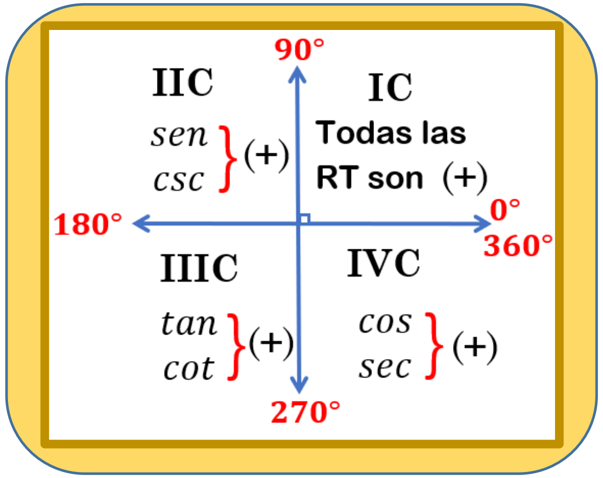
HELICOPRACTICE 4

Del gráfico, determine el signo de:

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



Recordar:



RESOLUCIÓN

- Del gráfico:

$\alpha \in IC$	$\beta \in IIC$	$\theta \in IVC$

- Hallamos el signo de:

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

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

$$\therefore \boxed{E = (+)}$$

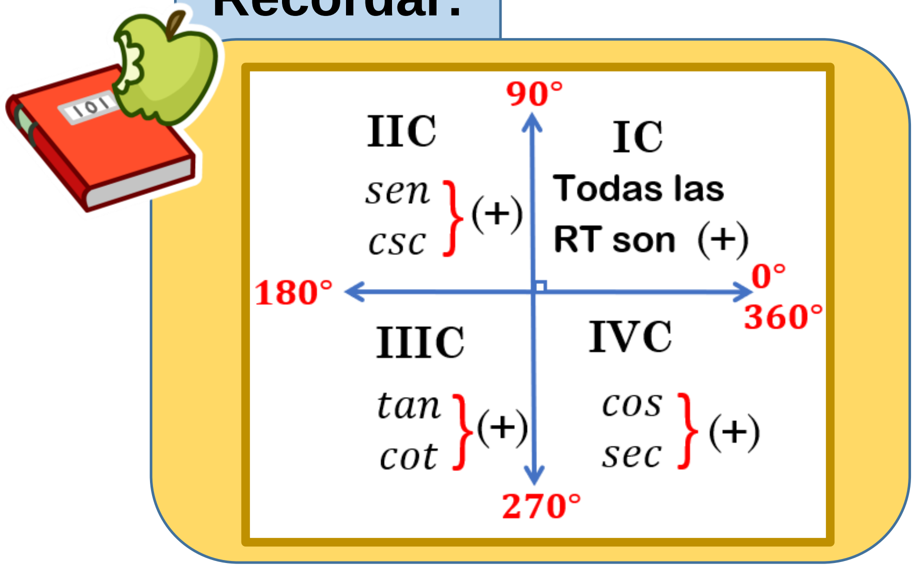
HELICOPRACTICE 5

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

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

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

Recordar:



RESOLUCIÓN

- Hallamos el signo de:

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

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

$$A = (+)$$

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

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

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

$$B = (-)$$

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

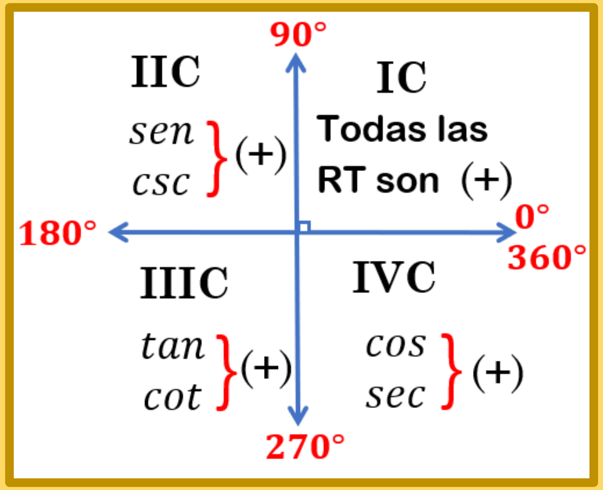
HELICOPRACTICE 6

Determine el signo en cada caso:

$$M = \tan 84°.\text{sen}179°$$

$$N = \frac{\sec 220°.\csc 70°}{\text{sen}280°}$$

Recordar:



RESOLUCIÓN

- Hallamos el signo de:

$$M = \tan\underbrace{84°}_{IC}.\text{sen}\underbrace{179°}_{IIC} = (+)(+)$$

$$\Rightarrow M = (+)$$

$$N = \frac{\sec\overbrace{220°}^{IIIC}.\csc\overbrace{70°}^{IC}}{\text{sen}\underbrace{280°}_{IVC}} = \frac{(\cancel{-})(+)}{(\cancel{-})}$$

$$\Rightarrow N = (+)$$

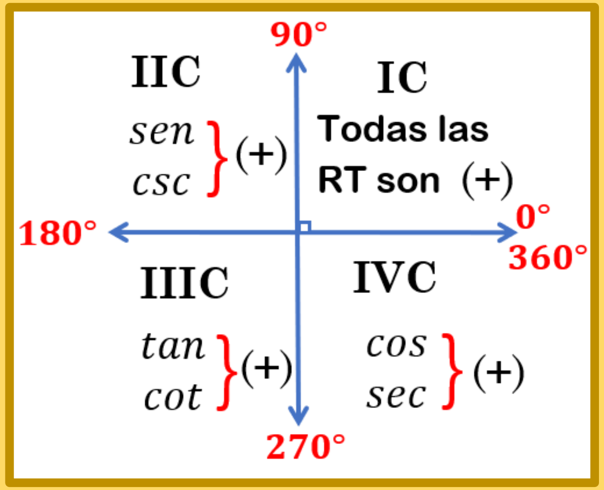
$$\therefore \boxed{(+);(+)}$$

HELICOPRACTICE 7

Si $270° < \theta < 360°$, determine el signo de:

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

Recordar:



RESOLUCIÓN

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

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

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

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

Hallamos signo de: $P = \cos\left(\frac{\theta}{2}\right) . \tan\left(\frac{\theta}{3}\right)$

$\Rightarrow P = (-)(-)$

$\therefore \boxed{P = (+)}$

HELICOPRACTICE 8

Efectúe:

$$W = (\csc 270° + \sec 180°)^2(\text{sen}90° + \cos 360°)^3$$

RESOLUCIÓN

Usando las RT de ángulos cuadrantales:

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

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

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

$\therefore$ $\boxed{W = 32}$

Recordar:

RT \ ∢	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:

$2x\cos 360° + 3\csc 90° = \text{sen}270° - x\tan 180°$

RESOLUCIÓN

Usando las RT de ángulos cuadrantales:

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

$$2x + 3 = -1$$

$$2x = -4$$

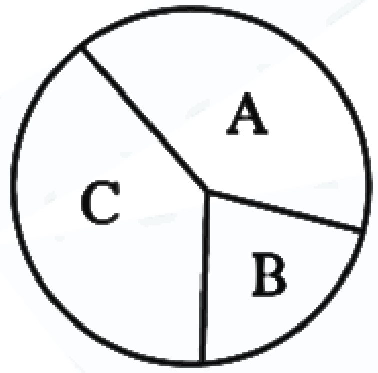
$$\therefore\ \boxed{x = -2}$$

Recordar:

RT \ ∢	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:

$A = (4\operatorname{sen}90° - 2\operatorname{sen}270°)\ GB$

$B = (5\cos 360° + 2\sec 180°)\ GB$

Determine el espacio disponible del USB.

RESOLUCIÓN

Usando las RT de ángulos cuadrantales:

- $A = (4(1) - 2(-1))\ GB$

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

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

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

Calculamos el espacio disponible C:

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