



TRIGONOMETRY

ADVISORY

2nd
SECONDARY

TOMOS 5 y 6

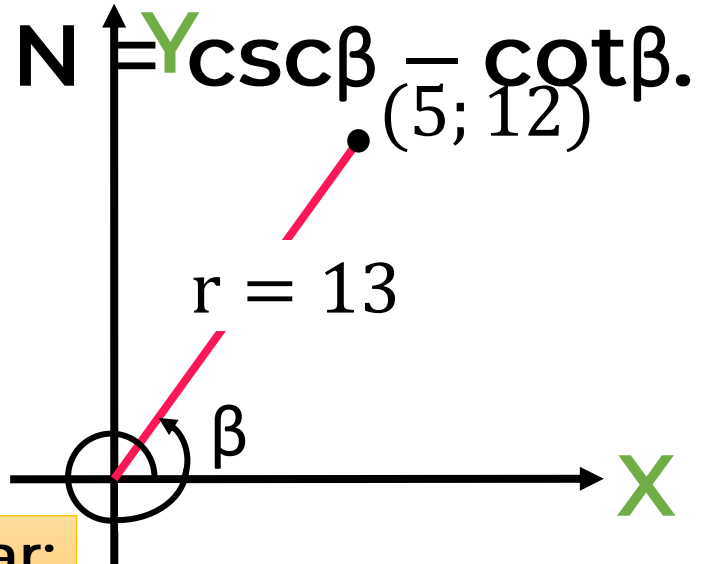


 **SACO OLIVEROS**

HELICOPRÁCTICA

1

Del gráfico, efectúe



Recordar:



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

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

RESOLUCIÓN

Calculando el radio vector

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

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

$$\rightarrow r = 13$$

$$x = 5$$

$$y = 12$$

$$r = 13$$

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

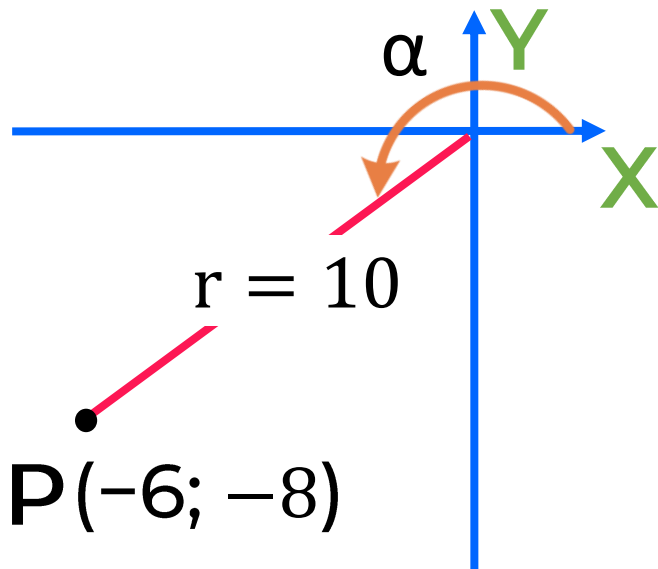
$$\rightarrow N = \frac{13}{12} - \frac{5}{12} \rightarrow N = \frac{\cancel{8}^2}{\cancel{12}_3} \therefore N = \frac{2}{3}$$

HELICOPRÁCTICA

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 vectorial

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

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

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

$$r = \sqrt{100}$$

➡ $r = 10$

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

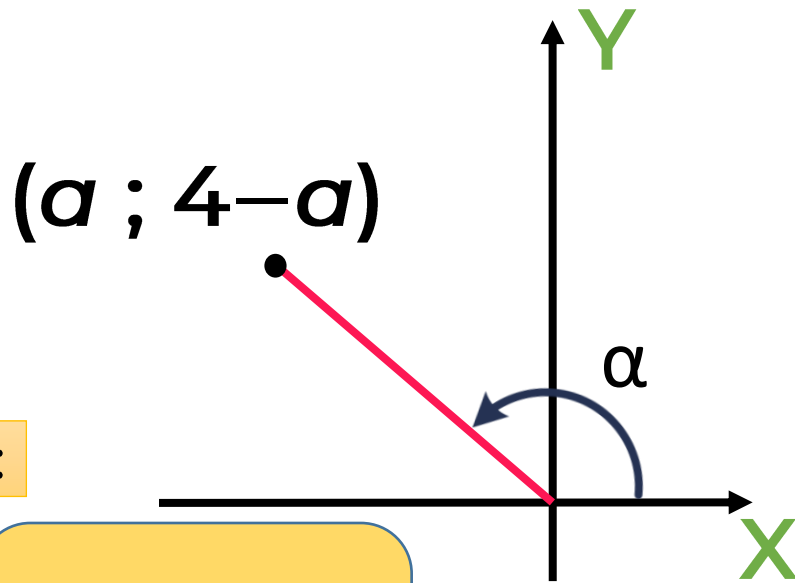
$$\Rightarrow E = \overset{2}{16} \left(\frac{-6}{\underset{1}{-8}} \right) - \overset{3}{18} \left(\frac{10}{\underset{1}{-6}} \right)$$

$$\Rightarrow E = 12 + 30 \therefore E = 42$$

HELICOPRÁCTICA

3

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



Recordar:



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

RESOLUCIÓN

• Del gráfico:

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

• Del dato:

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

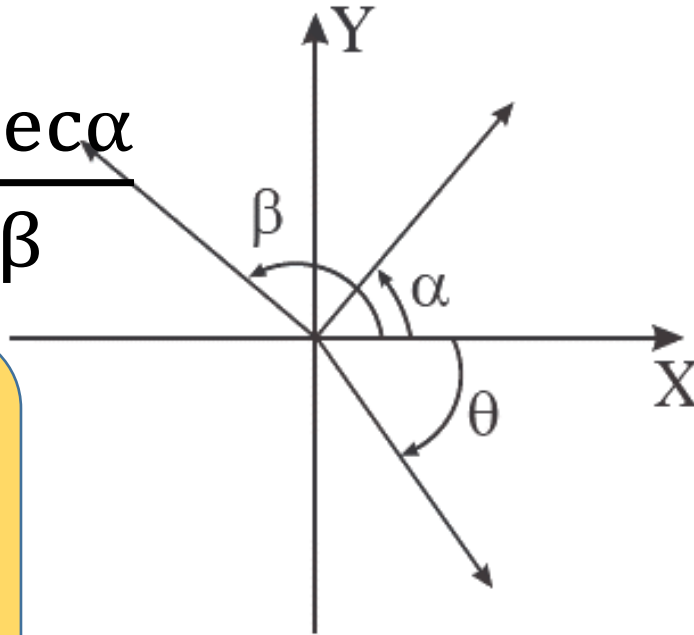
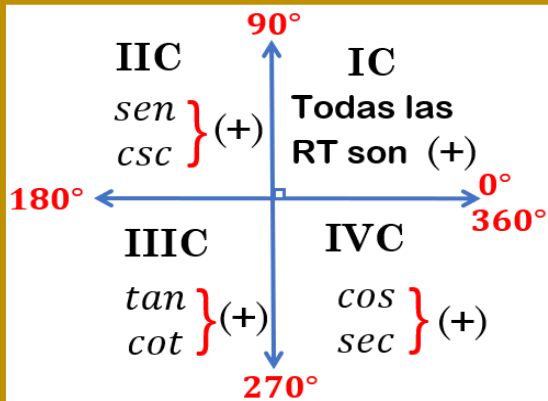
De (I) y

$$(II) \frac{a}{4-a} = -\frac{3}{4} \Rightarrow 4a = -12 + 3a$$
$$\therefore a = -12$$

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4 Del gráfico,
determine el signo
de:

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



RESOLUCIÓN

- Del gráfico:

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

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

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

- Piden signo:

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

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

$$\therefore E = (+)$$

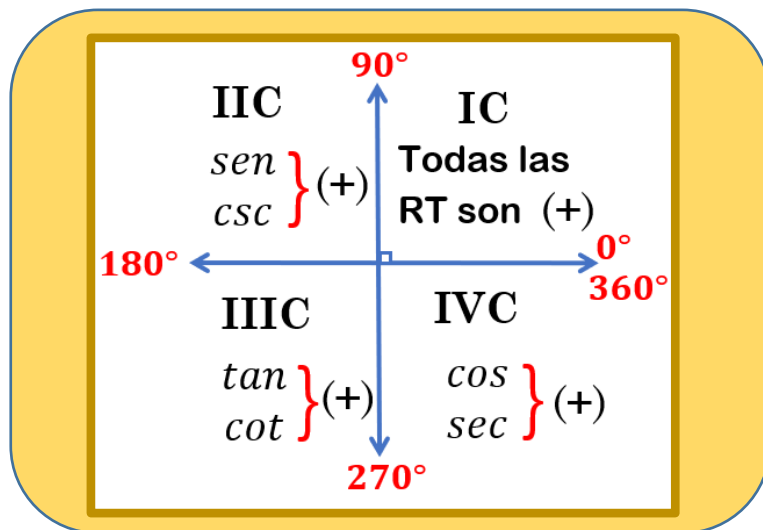
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5 Si $\alpha \in \text{IIC}$ y $\theta \in \text{IIC}$,
determine el signo de:

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

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

Recordar:



RESOLUCIÓN

• Piden signo:

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

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

$$A = (+)$$

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

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

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

$$B = (-)$$

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

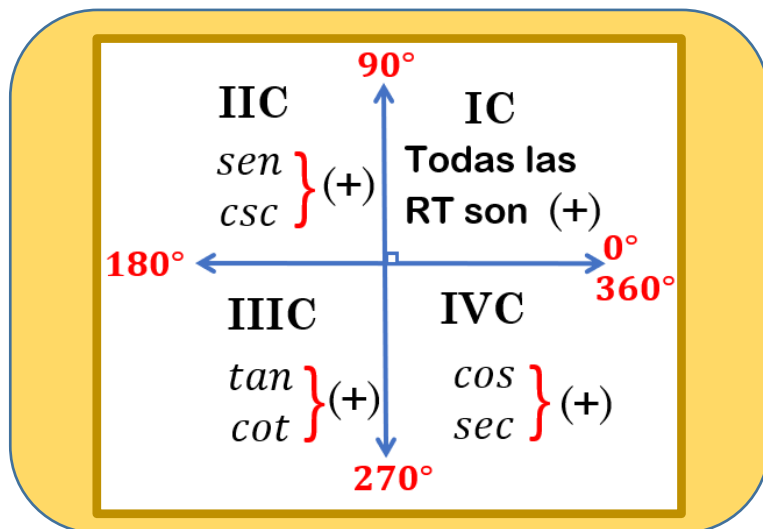
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6 Determine el signo en cada caso:

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

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

Recordar:



RESOLUCIÓN

• Piden signo:

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

➡ $M = (+)$

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

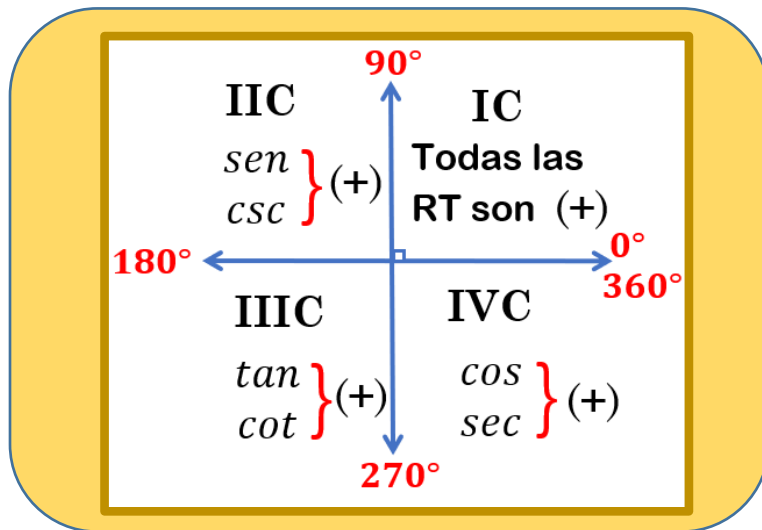
➡ $N = (+) \quad \therefore (+); (+)$

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7

Si $270^\circ < \theta < 360^\circ$,
determine el 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 $P = \cos\left(\frac{\theta}{2}\right) \cdot \tan\left(\frac{\theta}{3}\right)$

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

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8 Efectúe

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

RESOLUCIÓN

Usando las RT de ángulos cuadrantales:

$$W = ((-1) \quad (-1)) \{ (1) + (1) \}^3$$

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

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

$$\therefore W = 32$$

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

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9 Calcule el valor de x si

$$2x \cos 360^\circ + 3 \csc 90^\circ = \operatorname{sen} 270^\circ$$

$$- x \tan 180^\circ$$

RESOLUCIÓN

Usando las RT de ángulos cuadrantales:

$$2x (1) + 3 (1) = (-1) - x (0)$$

$$2x + 3 = -1$$

$$2x = -4$$

$$\therefore x = -2$$

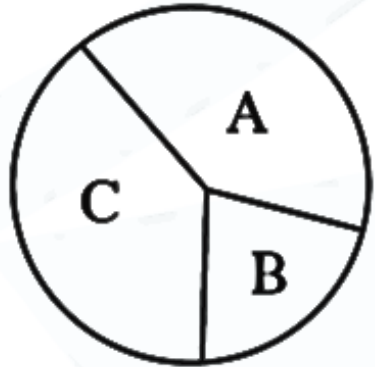
Recordar

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

HELICOPRÁCTICA

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:

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

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

Determine el espacio disponible del USB.

RESOLUCIÓN

Usando las RT de ángulos cuadrantales:

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

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

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

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

Piden: C: espacio disponible

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