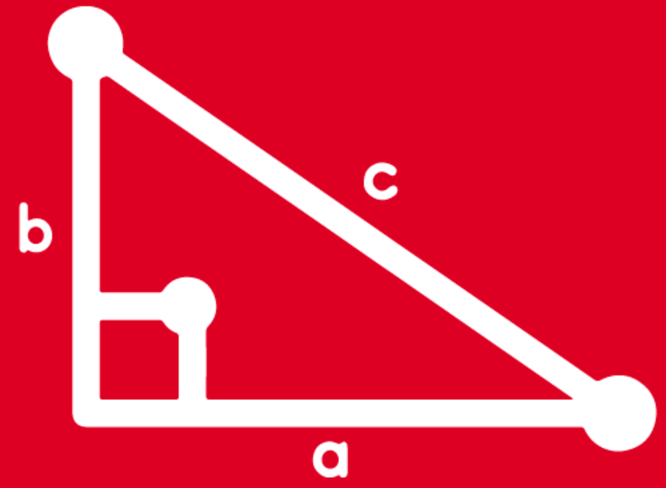
TRIGONOMETRY

3rd
SECONDARY



Advisory

SACO OLIVEROS

ADVISORY 1

Carla es una joven atleta que recorre el contorno del estadio municipal. Su preparador físico desea saber cuantos metros recorre en un mes, si por semana da 7 vueltas, alrededor del estadio.

$110sen(90°).cos(360°)m$

$70(sen270°.cos180°)m$

Resolución:

I) Calculando el largo y el ancho

- 110(sen90°.cos360°)m
  110(1).(1) = 110m
  (Largo)
- 70(sen270°.cos180°)m
  70(-1).(-1)= 70m
  (Ancho)

II) Luego, calculamos el perímetro:

2p = 2(110m) + 2(70m) ➔ 2p = 360m

III) En una semana recorre:

7(360m)= 2520m

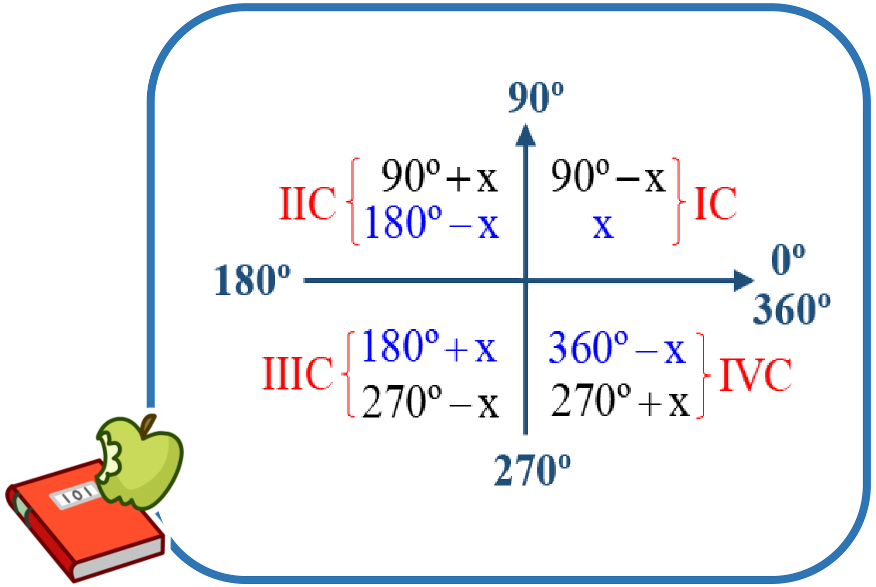
Finalmente, al mes recorre: 4(2520m)

$\boxed{=10080\ m}$

ADVISORY 2

Reduzca: $B = \dfrac{\cot(180° - x)}{\cot(-x)} + \dfrac{\csc(270° + x)}{\sec(-x)}$

Recuerda:



Además:

cot(-x)= -cotx

sec(-x)= secx

Resolución:

$$B = \dfrac{\cot\overbrace{(180° - x)}^{\text{IIC}}}{\cot(-x)} + \dfrac{\csc\overbrace{(270° + x)}^{\text{IVC}}}{\sec(-x)}$$

$$B = \dfrac{\cancel{-\cot}(x)}{\cancel{-\cot}(x)} + \dfrac{\cancel{-\sec}\,(x)}{\cancel{\sec}(x)}$$

$$B = 1 + (-1)$$

$$\boxed{\therefore B = 0}$$

Wonderfull!

ADVISORY 3

Calcule : $E = 4\cos 780°.\tan 1485°$

Resolución:

Remplazamos directamente en la expresión:

$E = 4\cos 780°.\tan 1485°$

$E = 4\cos 60°.\tan 45°$

$E = 4\left(\frac{1}{2}\right).(1)$ $\boxed{\therefore E = 2}$

Cálculos Auxiliares:

cos780°

$$\begin{array}{r|l} 780° & 360° \\ \hline 720° & 2 \\ 60° & \end{array}$$

$\cos 60°$

tan1485°

$$\begin{array}{r|l} 1485° & 360° \\ \hline 1440° & 4 \\ 45° & \end{array}$$

$\tan 45°$

Recuerda:

$\cos 60° = 1/2$

$\tan 45° = 1$

ADVISORY 4

Halle el valor de m, si : $\sqrt{2}\text{m}.\ \sec(-45°) - 2\text{sen}(-30°) = 10\cos(-53°)$

Resolución:

$$\sqrt{2}\text{m}.\sec(45°) - [-2\text{sen}(30°)] = 10\cos(53°)$$

$$\sqrt{2}(\sqrt{2})\text{m} + 2\left(\frac{1}{2}\right) = 10\left(\frac{3}{5}\right)$$

$$2\text{m} + 1 = 6$$

$$\boxed{\text{m} = \frac{5}{2}}$$

Recordar:

$\cos(-x) = \cos x$

$\sec(-x) = \sec x$

$\tan(-x) = -\tan x$

Además:

$\sec 45° = \sqrt{2}$ $\quad$ $\text{sen}30° = \frac{1}{2}$

$\cos 53° = \frac{3}{5}$

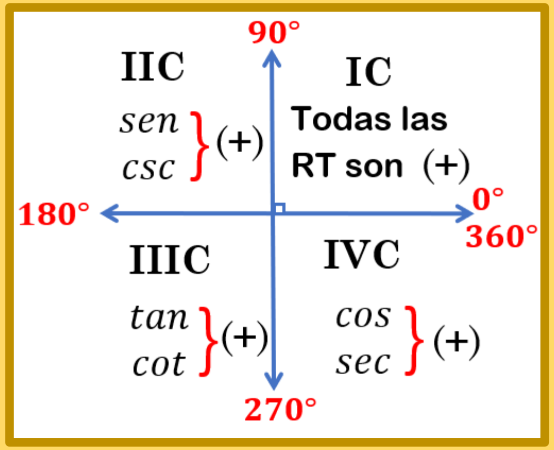
ADVISORY 5

Determine el signo en cada expresión.

$M = \text{sen}132° + \tan257°$

$N = \cot140° + \cos260°$

Recordar:



Resolución:

$$M = \underbrace{\overbrace{\text{sen}132°}^{\text{IIC}}}_{(+)} + \underbrace{\overbrace{\cot257°}^{\text{IIIC}}}_{(+)} \Rightarrow \boxed{M = +}$$

$$N = \underbrace{\overbrace{\cot140°}^{\text{IIC}}}_{(-)} + \underbrace{\overbrace{\cos260°}^{\text{IIIC}}}_{(-)} \Rightarrow \boxed{N = -}$$

ADVISORY 6

Efectúe

$$A = \frac{5\text{sen}90° - 9\sec360°}{\tan180° + 4\csc270°}$$

Recordar:

$\text{sen}90° = 1$ $\sec360° = 1$

$\tan180° = 0$ $\csc270° = -1$

Resolución:

$$A = \frac{5\text{sen}90° - 9\sec360°}{\tan180° + 4\csc270°}$$

$$A = \frac{5(1) - 9(1)}{(0) + 4(-1)}$$

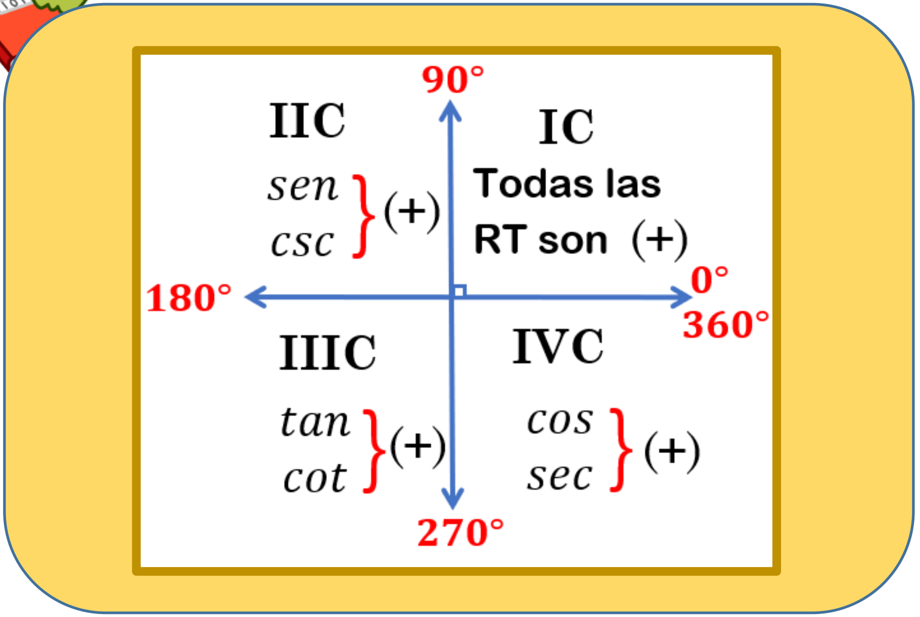
¡ Genial !

$$A = \frac{5 - 9}{-4} \Rightarrow \boxed{A = 1}$$

ADVISORY 7

Determine el signo de P y Q, si
$\alpha \in \mathrm{IIC}$ y θ IVC.

$$P = \tan\theta \, . \sec\alpha \qquad Q = \frac{\cos\theta}{\cot\alpha}$$



Resolución:

Piden el signo de :

$$P = \tan\theta \, . \sec\alpha$$

$$P = (-) \, . \, (-)$$

$$P = (+)$$

$$Q = \frac{\cos\theta}{\cot\alpha}$$

$$Q = \frac{(+)}{(-)}$$

$$Q = (-)$$

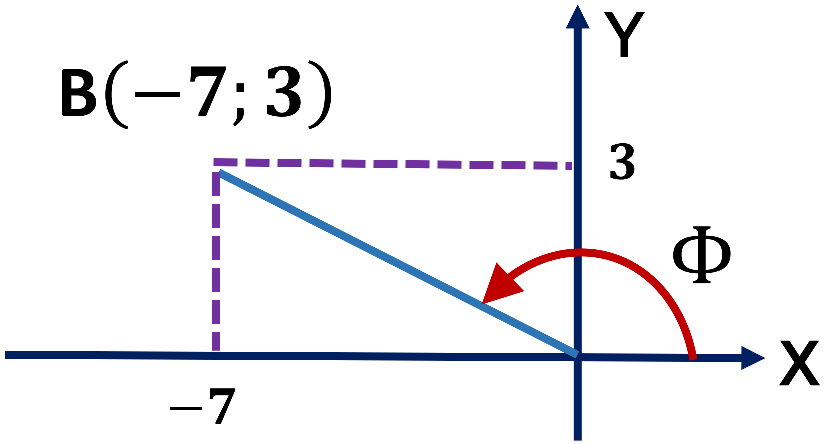
Finalmente:

P es positivo y Q es negativo

ADVISORY 8

Del gráfico, efectué:

$T = \text{sen}\Phi + \cos\Phi$



Recordar:

$\text{sen}\alpha = \frac{y}{r}$ $\quad \cos\alpha = \frac{x}{r}$

Resolución:

Del punto B, tenemos:

$x = -7\ ;\ y = 3$

$r = \sqrt{(-7)^2 + (3)^2} \Rightarrow r = \sqrt{58}$

Piden: $T = \text{sen}\Phi + \cos\Phi$

$T = \left(\frac{3}{\sqrt{58}}\right) + \left(-\frac{7}{\sqrt{58}}\right)$

$T = -\frac{4}{\sqrt{58}}$

$\boxed{\therefore T = -\frac{4}{\sqrt{58}}}$

ADVISORY 9

Si el punto M(7;-24) pertenece al lado final del ángulo en posición normal α ; efectué K = cosα.tanα

Resolución:

Del punto M, tenemos:

$x = 7\ ;\ y = -24$

$\mathrm{r} = \sqrt{(7)^2 + (-24)^2}$

$\mathrm{r} = \sqrt{49 + 576}$ ➡ $\mathbf{r} = \sqrt{\mathbf{625}} = \mathbf{25}$

Recordar:

$\cos\alpha = \dfrac{x}{r}$ $\tan\alpha = \dfrac{y}{x}$

Recordar:

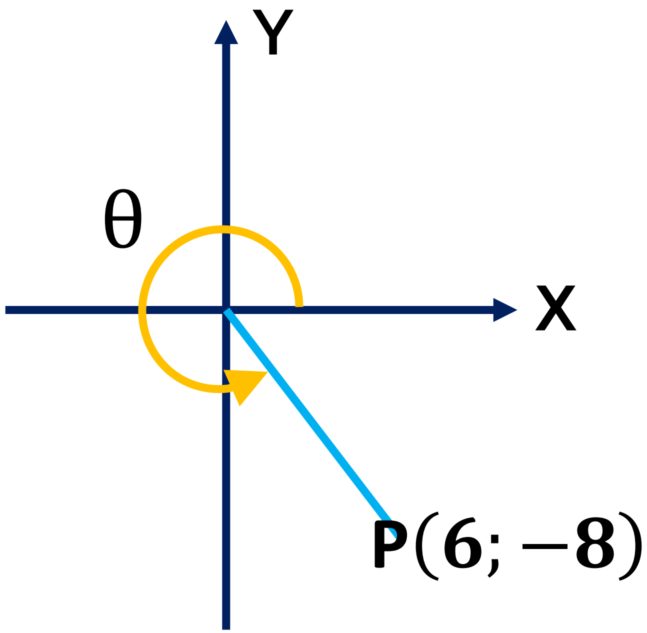
$r = \sqrt{x^2 + y^2}$

Piden: $\cos\alpha.\tan\alpha = \left(\frac{7}{25}\right)\left(-\frac{24}{7}\right) = -\frac{24}{25}$

$\boxed{\therefore K = \dfrac{-24}{25}}$

ADVISORY 10

Del gráfico, calcule Z = 30senθ



Recordar:

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

Resolución:

Del punto P, tenemos:

$\mathbf{x = 6 \; ; \; y = -8}$

$\mathbf{r = \sqrt{(6)^2 + (-8)^2}}$ ➡ $\mathbf{r = \sqrt{36 + 64}}$

➡ $\mathbf{r = 10}$

Piden:

$$\mathbf{30sen\theta = \frac{y}{r}} \quad ➡ \quad \mathbf{Z = 30\left(-\frac{8}{10}\right)}$$

$\boxed{\therefore \mathbf{Z = -24}}$