



# TRIGONOMETRY

**2nd**  
SECONDARY

**ADVISORY**



1

Escriba verdadero (V) o falso (F) según corresponda:

**a.**  $\cos 12^\circ = \operatorname{sen} 12^\circ$  (F)

**b.**  $\tan 61^\circ = \cot 29^\circ$  (V)

**c.**  $\sec 22^\circ = \csc 68^\circ$  (V)

Recordar:



Si  $\operatorname{RT}(\alpha) = \operatorname{CO-RT}(\beta)$

se cumple que

$$\alpha + \beta = 90^\circ$$

## RESOLUCIÓN:



**a.**  $\underbrace{\cos 12^\circ}_\alpha = \underbrace{\operatorname{sen} 12^\circ}_\beta$

$$\rightarrow \alpha + \beta = 12^\circ + 12^\circ = 24^\circ \neq 90^\circ$$

**b.**  $\underbrace{\tan 61^\circ}_\alpha = \underbrace{\cot 29^\circ}_\beta$

$$\rightarrow \alpha + \beta = 61^\circ + 29^\circ = 90^\circ$$

**c.**  $\underbrace{\sec 22^\circ}_\alpha = \underbrace{\csc 68^\circ}_\beta$

$$\rightarrow \alpha + \beta = 22^\circ + 68^\circ = 90^\circ$$

**$\therefore F; V; V$**

2

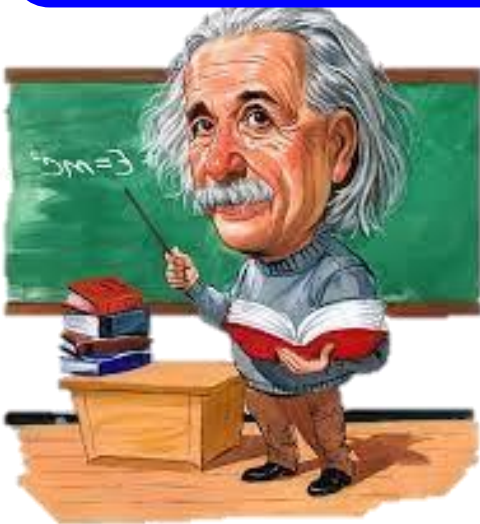
Si  $\operatorname{sen} \alpha = \frac{7}{8}$

efectúe  $N = 35 \operatorname{csc} \alpha$

Remember

:

$$\operatorname{sen} \alpha = \frac{a}{b} \rightarrow \operatorname{csc} \alpha = \frac{b}{a}$$



## RESOLUCIÓN:

$$\operatorname{sen} \alpha = \frac{7}{8} \rightarrow \operatorname{csc} \alpha = \frac{8}{7}$$

### Reemplazamos:

$$N = 35 \operatorname{csc} \alpha$$

$$N = 35 \left( \frac{8}{7} \right)$$

$$\therefore N =$$

$$40$$

3

Calcul  $\tan 6x$ ; si:

$$\text{e}$$

$$\text{sen}(2x + 18^\circ) = \cos(3x + 22^\circ)$$

Recordar:



Si  $\text{RT}(\alpha) = \text{CO-RT}(\beta)$   
 → se cumple que

$$\alpha + \beta = 90^\circ$$

## RESOLUCIÓN:



$$\text{sen}(2x + 18^\circ) = \cos(3x + 22^\circ)$$

$$2x + 18^\circ + 3x + 22^\circ = 90^\circ$$

$$5x + 40^\circ = 90^\circ$$

$$5x = 50^\circ$$

$$x = 10^\circ$$

Piden  $\tan 6x = \tan 60^\circ$

:

$$\therefore \tan 6x = \sqrt{3}$$

4

Calcule:

$$P = \frac{3 \operatorname{sen} 56^\circ + 9 \operatorname{cos} 34^\circ}{7 \operatorname{cos} 34^\circ - \operatorname{sen} 56^\circ}$$

Recordar:

Si  $\alpha + \beta = 90^\circ$ 

se cumple que

$$\operatorname{RT}(\alpha) = \operatorname{CO-RT}(\beta)$$



## RESOLUCIÓN



$$\therefore 56^\circ + 34^\circ = 90^\circ$$

$$\Rightarrow \operatorname{sen} 56^\circ = \operatorname{cos} 34^\circ$$

Reemplazand

$$P = \frac{3 \operatorname{sen} 56^\circ + 9 \operatorname{cos} 34^\circ}{7 \operatorname{cos} 34^\circ - \operatorname{sen} 56^\circ}$$

$$P = \frac{3 \operatorname{sen} 56^\circ + 9 \operatorname{sen} 56^\circ}{7 \operatorname{sen} 56^\circ - \operatorname{sen} 56^\circ}$$

$$P = \frac{12 \cancel{\operatorname{sen} 56^\circ}}{6 \cancel{\operatorname{sen} 56^\circ}}$$

$$\therefore P = 2$$

5

Calcule el valor de  $\theta$ ; si:

$$\frac{\tan(2\theta - 8^\circ)}{\cot(5\theta - 14^\circ)} = 1$$

Recordar:

**R.T. Complementaria**Si  $\tan \alpha = \cot \beta$ 

se cumple que

$$\alpha + \beta = 90^\circ$$

## RESOLUCIÓN:



$$\frac{\tan(2\theta - 8^\circ)}{\cot(5\theta - 14^\circ)} = 1$$

$$\tan(2\theta - 8^\circ) = \cot(5\theta - 14^\circ)$$

$$\rightarrow (2\theta - 8^\circ) + (5\theta - 14^\circ) = 90^\circ$$

$$7\theta - 22^\circ = 90^\circ$$

$$7\theta = 112^\circ$$

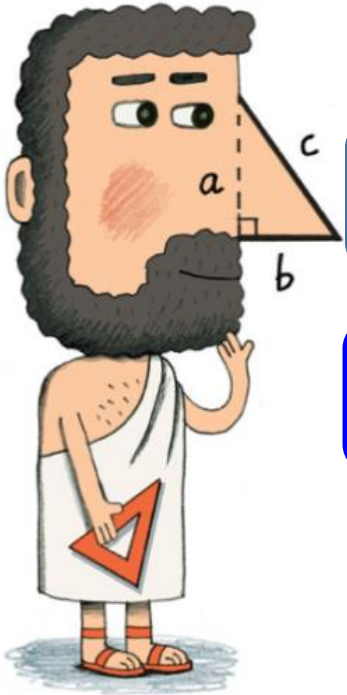
$$\therefore \theta = 16^\circ$$

6

Si  $\text{sen} 7x \cdot \text{sec} 20^\circ = 1$ , calcule

$$P = 10\cos 6x + \csc 3x$$

**Remember:**



$$\begin{aligned} SI: \alpha + \beta &= 90^\circ \\ RT(\alpha) &= CO - RT(\beta) \end{aligned}$$

$$\text{sen } \alpha \cdot \csc \alpha = 1$$

## RESOLUCIÓN:

$$\text{sen} 7x \cdot \underbrace{\text{sec} 20^\circ}_{\csc 70^\circ} = 1$$

$$\text{sen} 7x \cdot \csc 70^\circ = 1$$

$$\cancel{7}x = \cancel{7}0^\circ$$

$$x = 10^\circ$$

Reemplazamos:

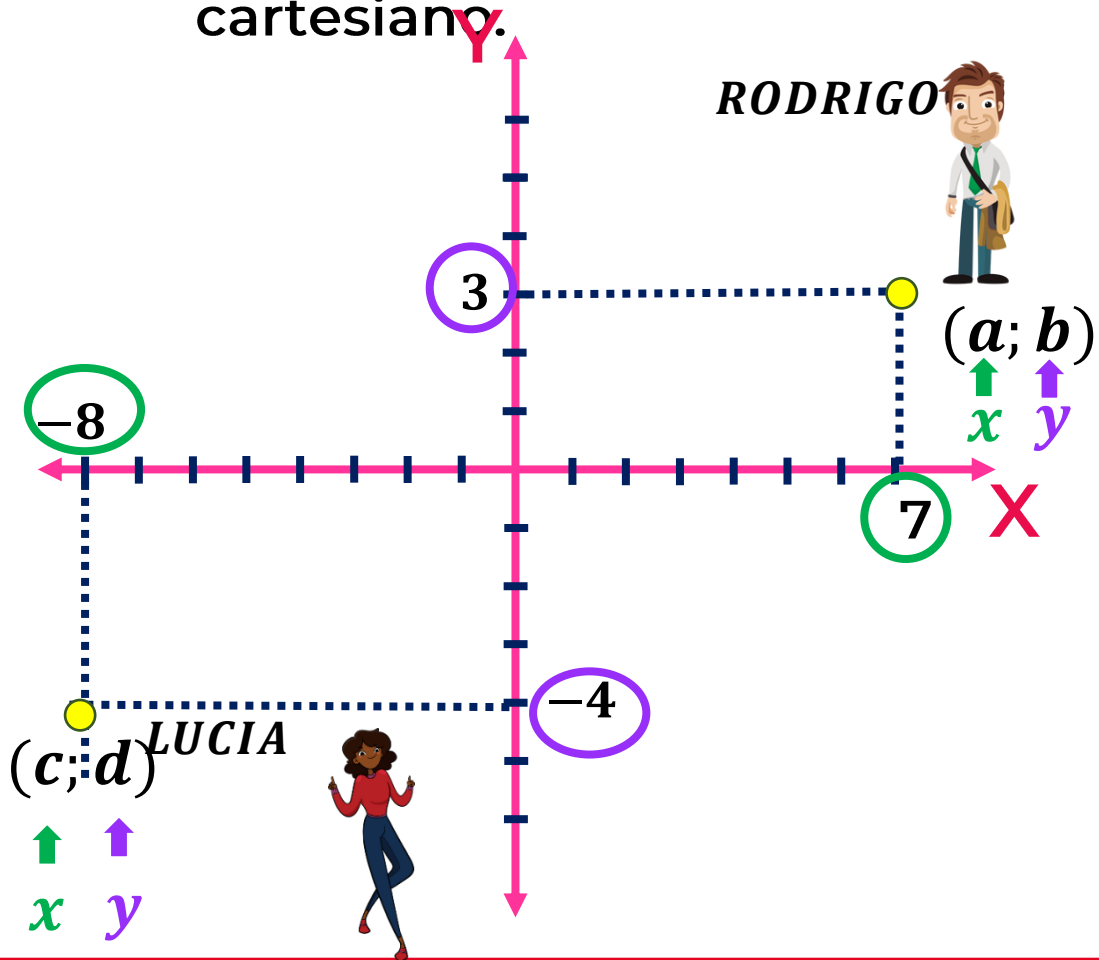
$$P = 10\cos 60^\circ + \csc 30^\circ$$

$$P = \cancel{10} \left( \frac{1}{\cancel{2}} \right) + 2$$

$$\therefore P = 7$$

7

Indique la suma de coordenadas de la ubicación de Rodrigo y Lucia en el plano cartesiano.



## RESOLUCIÓN:

Coordenadas de Juan:

$$a = 7$$

$$b = 3$$

➡ Rodrigo:  $(7; 3)$

Coordenadas de Patty:

$$c = -8$$

$$d = -4$$

➡ Lucia :  $(-8; -4)$

Suma  
COORDENADAS

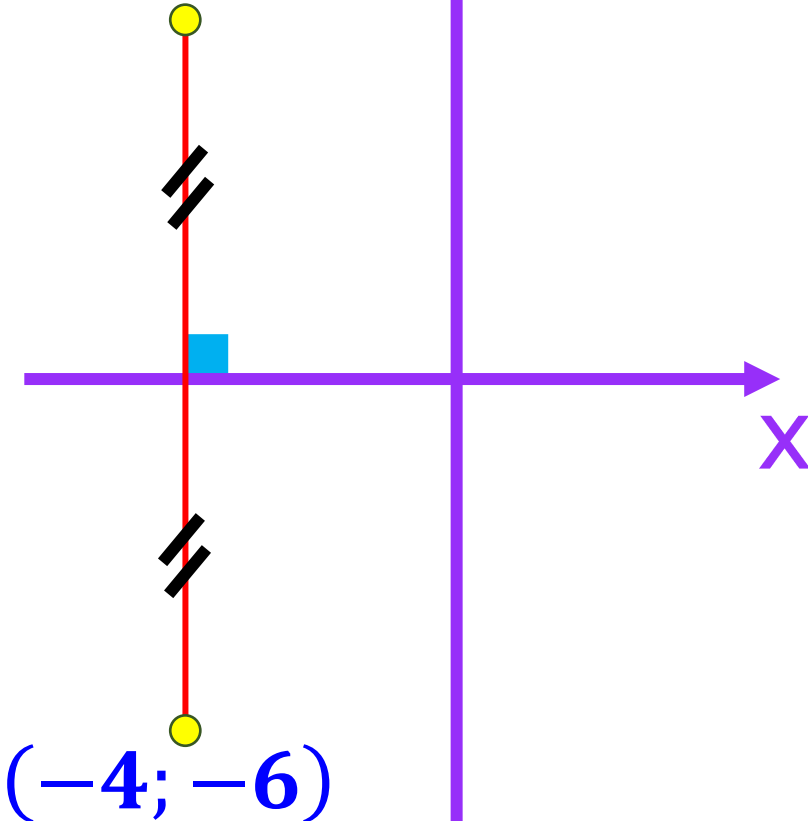
$$= 7 + 3 - 8 - 4$$

$$= -2$$

La suma de coordenadas de la ubicación de Rodrigo y Lucia en el plano cartesiano es:  $-2$



8

Del  
calcule: $(m; n)$ 

## RESOLUCIÓN

Simetría respecto al eje X:

$$m = -4$$

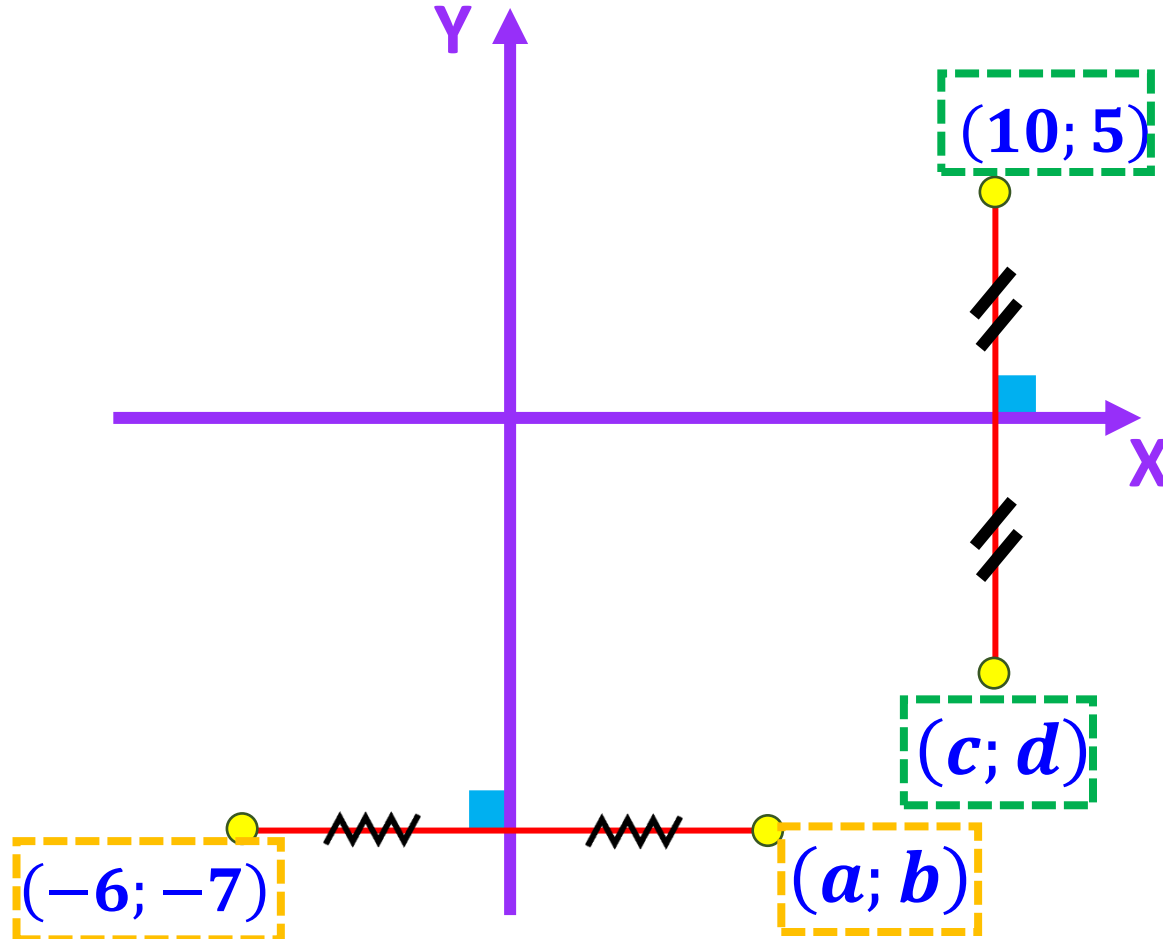
$$n = 6$$

Piden:

$$\frac{m}{n} = \frac{-4}{6}$$

$$\therefore \frac{m}{n} = -\frac{2}{3}$$

9

Del  
calcule:gráfico,  $a \cdot b + \frac{c}{d}$ 

## RESOLUCIÓN

N: Simetría respecto al eje Y:

$$a = 6$$

$$b = -7$$

Simetría respecto al eje X:

$$c = 10$$

$$d = -5$$

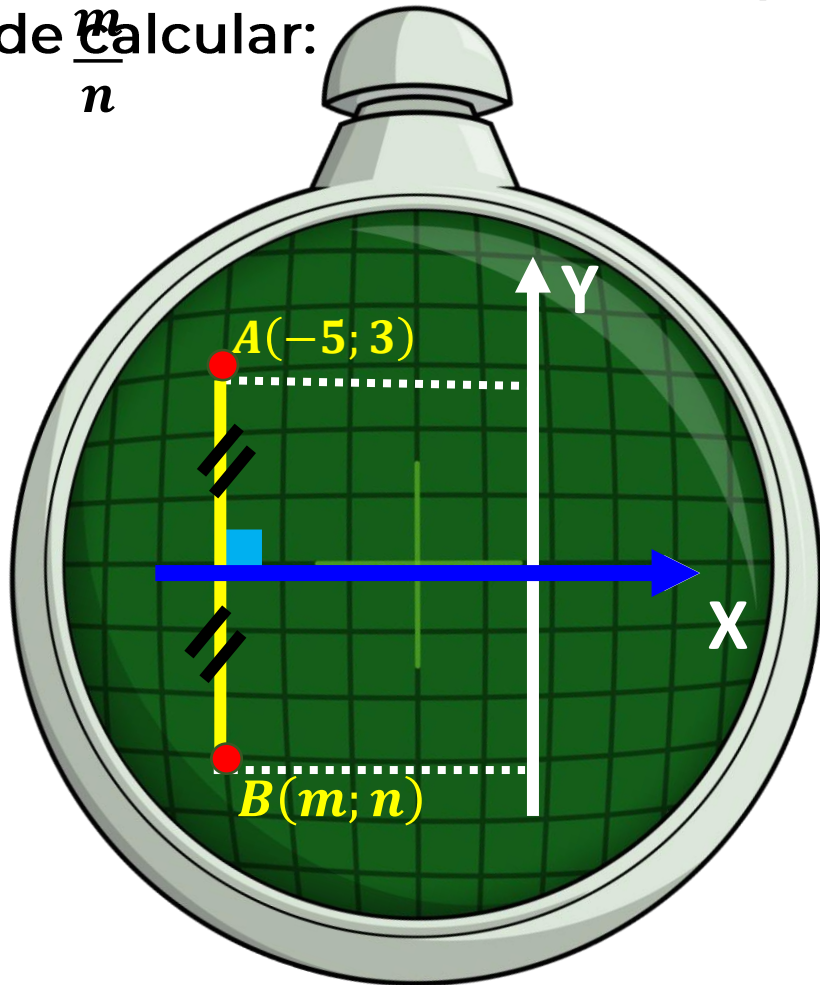
Piden:

$$\begin{aligned} a \cdot b + \frac{c}{d} &= (6)(-7) + \frac{10}{-5} \\ &= -42 - 2 \end{aligned}$$

$$\therefore a \cdot b + \frac{c}{d} = -44$$

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Nuestro radar presenta fallas y solo nos muestra las coordenadas de los puntos A y B como se muestra en la figura. Se nos pide  $\frac{m}{n}$  calcular:

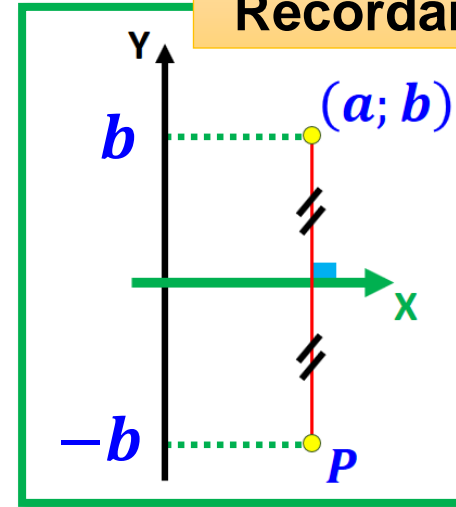


## RESOLUCIÓN:



Simetría respecto al eje X:

Recordar:



TinTin13

$P(a; -b)$

$$m = -5$$

$$n = -3$$

Piden:  $\frac{m}{n} = \frac{-5}{-3}$

$$\therefore \frac{m}{n} = \frac{5}{3}$$