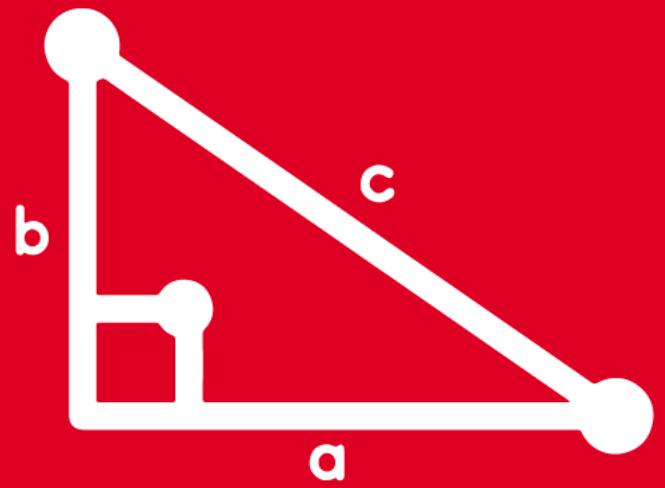
TRIGONOMETRY

TOMO 3 y 4



2nd
SECONDARY

ADVISORY

SACO OLIVEROS

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

a. $\cos 12° = \text{sen}12°$ **(F)**

b. $\tan 61° = \cot 29°$ **(V)**

c. $\sec 22° = \csc 68°$ **(V)**

Recordar:

Si RT (α) = CO-RT (β)

se cumple que

$$\alpha + \beta = 90°$$

RESOLUCIÓN:

a. $\cos \underbrace{12°}_{\alpha} = \text{sen}\underbrace{12°}_{\beta}$

$\rightarrow \alpha + \beta = 12° + 12° = 24° \neq 90°$

b. $\tan \underbrace{61°}_{\alpha} = \cot\underbrace{29°}_{\beta}$

$\rightarrow \alpha + \beta = 61° + 29° = 90°$

c. $\sec \underbrace{22°}_{\alpha} = \csc\underbrace{68°}_{\beta}$

$\rightarrow \alpha + \beta = 22° + 68° = 90°$

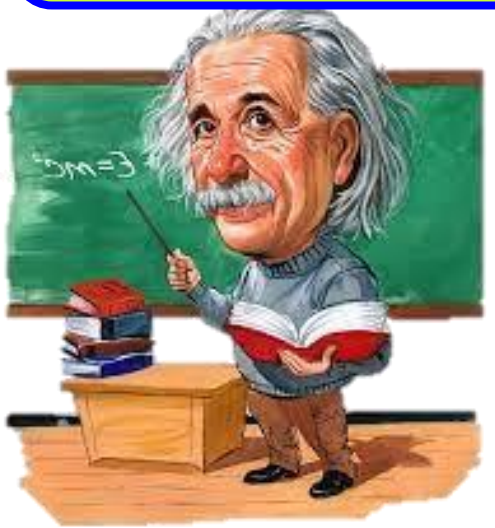
$\therefore F; V; V$

2 $Si\ \ sen\alpha = \frac{7}{8}$

$\boldsymbol{efectúe\quad N = 35csc\alpha}$

Remember:

$$\boldsymbol{sen\,\alpha = \frac{a}{b} \Rightarrow csc\,\alpha = \frac{b}{a}}$$



RESOLUCIÓN:

$$sen\alpha = \frac{7}{8} \Rightarrow csc\alpha = \frac{8}{7}$$

Reemplazamos:

$$N = 35\,csc\alpha$$

$$N = \overset{5}{\cancel{35}}\left(\frac{8}{\cancel{7}}\right)$$

$$\therefore\ \mathbf{N = 40}$$

3 Calcule $tan\,6x$; si:

$$sen(2x + 18°) = cos(3x + 22°)$$

Recordar:

Si RT (α) = CO-RT (β)

se cumple que

$$\alpha + \beta = 90°$$

RESOLUCIÓN:

$$sen(2x + 18°) = cos(3x + 22°)$$

$$2x + 18° + 3x + 22° = 90°$$

$$5x + 40° = 90°$$

$$5x = 50°$$

$$x = 10°$$

Piden: $tan\,6x = tan\,60°$

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

4 Calcule:

$$P = \frac{3\,sen\,56° + 9\,cos\,34°}{7\,cos\,34° - sen\,56°}$$

Recordar:

Si $\alpha + \beta = 90°$

se cumple que

RT (α) = CO-RT (β)

RESOLUCIÓN:

$$56° + 34° = 90°$$

$$sen\,56° = cos\,34°$$

Reemplazando:

$$P = \frac{3\,sen\,56° + 9\,cos\,34°}{7\,cos\,34° - sen\,56°}$$

$$P = \frac{3sen\,56° + 9\,sen\,56°}{7sen\,56° - sen\,56°}$$

$$P = \frac{12\,\cancel{sen\,56°}}{6\,\cancel{sen\,56°}}$$

$$\therefore P = 2$$

5 Calcule el valor de θ; si:

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

Recordar:

R.T. Complementaria

Si $tan\,\alpha = cot\,\beta$

se cumple que

$$\alpha + \beta = 90°$$

RESOLUCIÓN:

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

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

$$(2\theta - 8°) + (5\theta - 14°) = 90°$$

$$7\theta - 22° = 90°$$

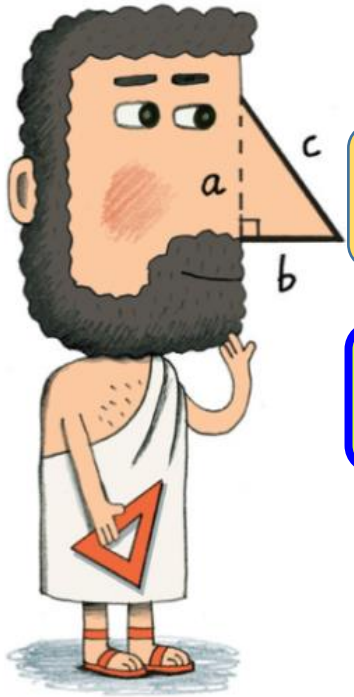
$$7\theta = 112°$$

$$\therefore \theta = 16°$$

6 $Si\ sen7x.sec20° = 1, calcule$

$$P = 10cos6x + csc3x$$

Remember:



$$SI: \alpha + \beta = 90°$$
$$RT(\alpha) = CO - RT(\beta)$$

$$sen\,\alpha \cdot csc\,\alpha = 1$$

RESOLUCIÓN:

$$sen7x.sec20° = 1$$

$$sen7x.csc70° = 1$$

$$7x = 70°$$

$$x = 10°$$

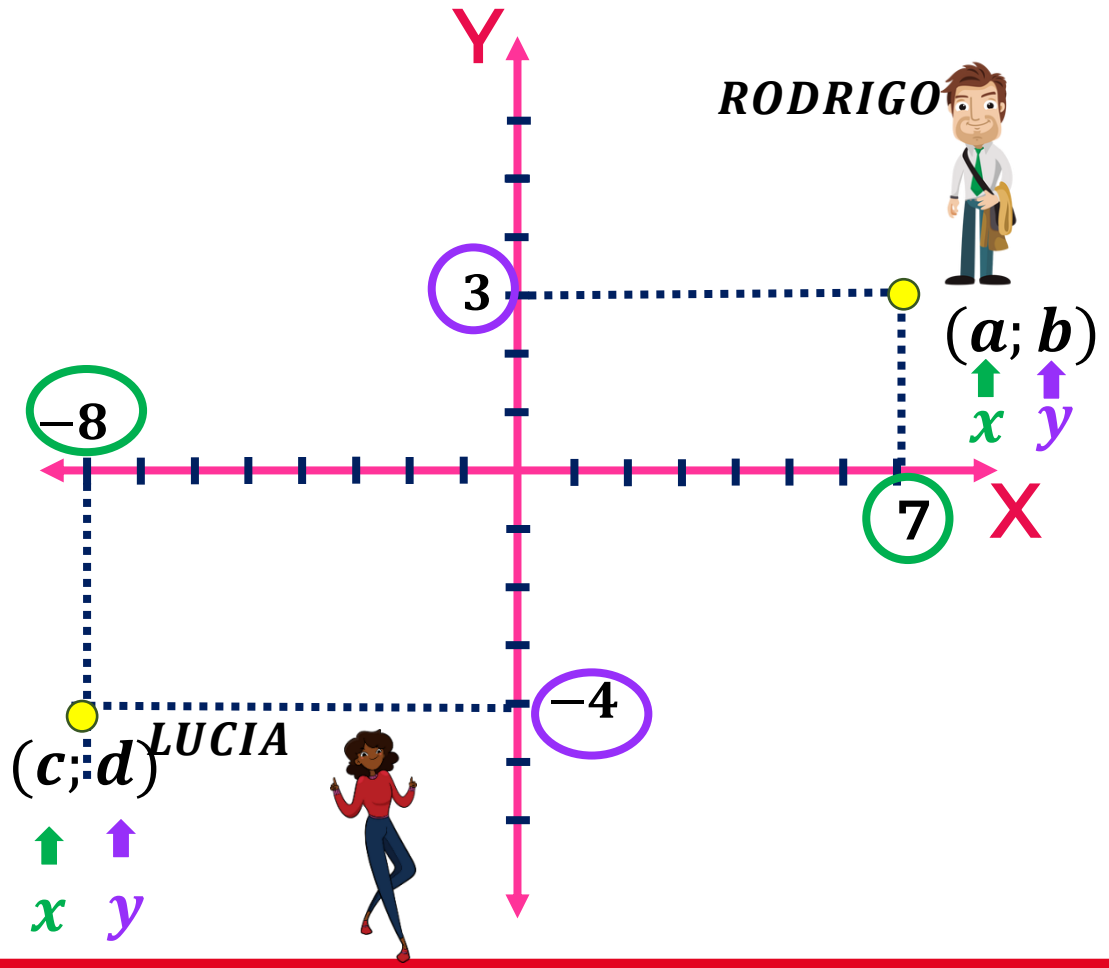
Reemplazamos:

$$P = 10cos60° + csc30°$$

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

$$\therefore P = 7$$

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:

$c = -8$

$d = -4$

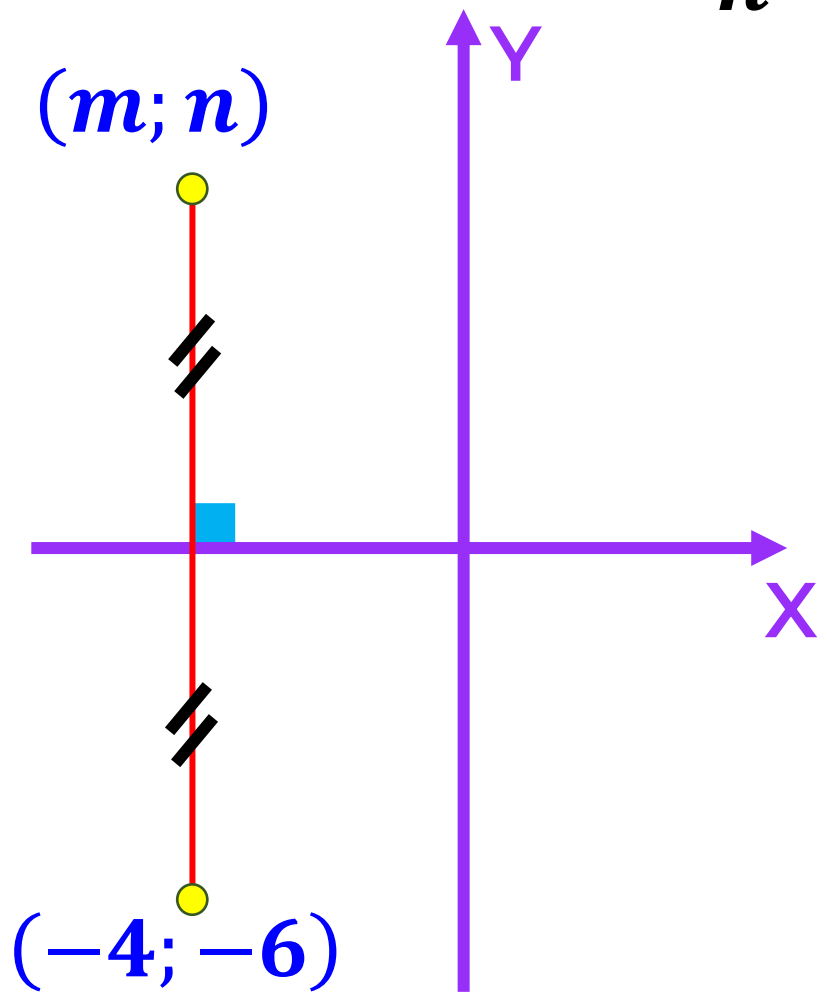
➡ Lucia : $(-8; -4)$

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 gráfico, calcule: $\frac{m}{n}$



RESOLUCIÓN:

Simetría respecto al eje X:

$$m = -4$$

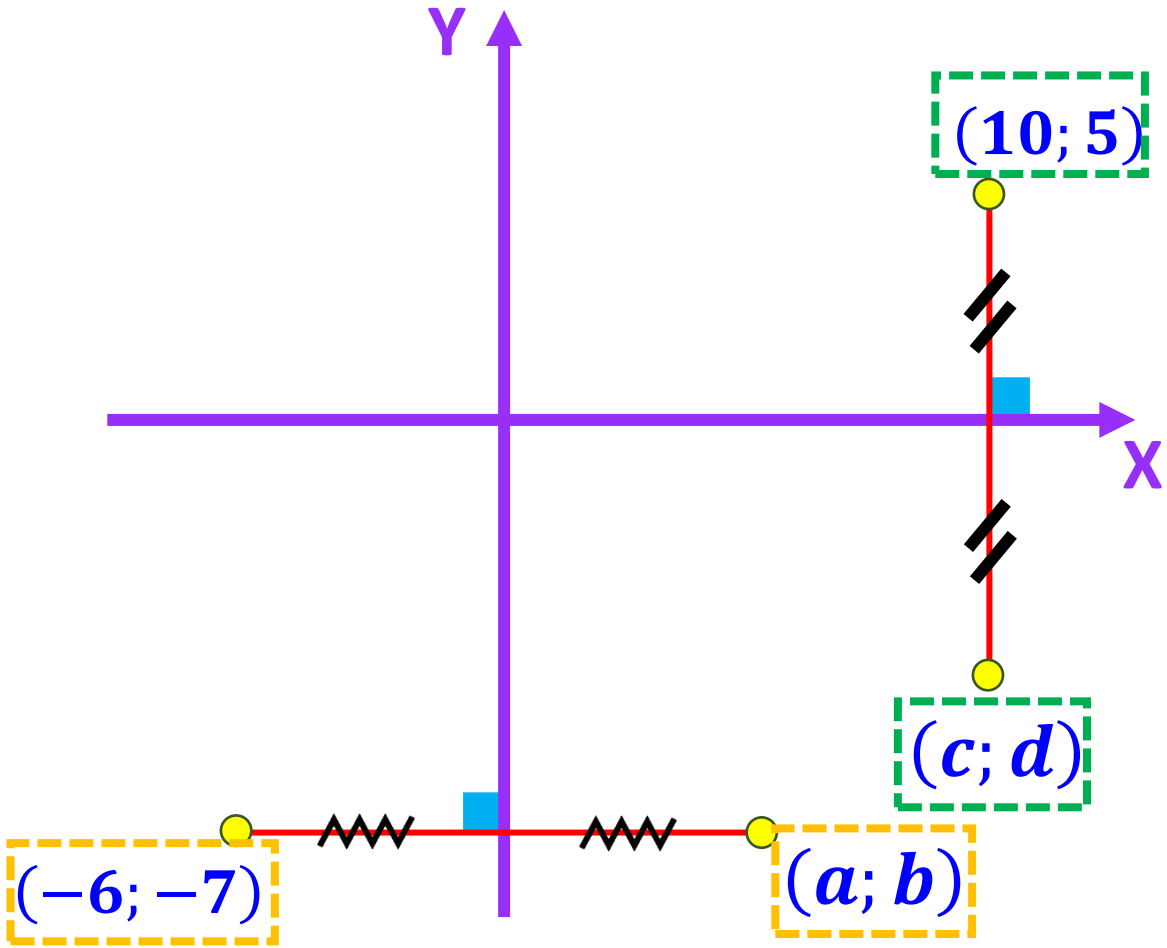
$$n = 6$$

Piden:

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

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

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



RESOLUCIÓN:

Simetría respecto al eje Y:

$$a = 6$$

$$b = -7$$

Simetría respecto al eje X:

$$c = 10$$

$$d = -5$$

Piden:

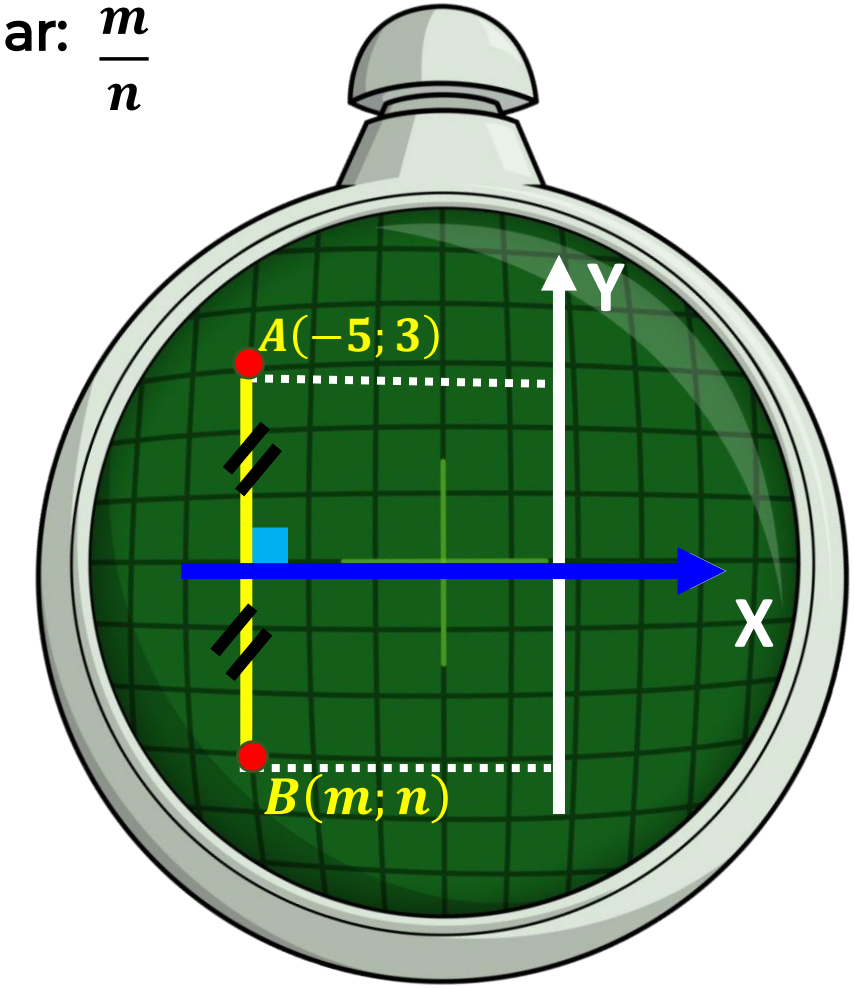
$$a \cdot b + \frac{c}{d} = (6)(-7) + \frac{10}{-5}$$

$$= -42 - 2$$

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

10

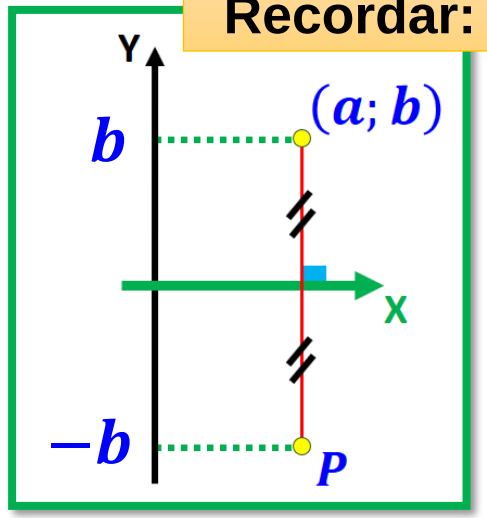
Nuestro radar presenta fallas y solo nos muestra las coordenadas de los puntos A y B como se muestra en la figura. Se nos pide calcular: $\frac{m}{n}$



RESOLUCIÓN:

Simetría respecto al eje X:

Recordar:



$$P(a;-b)$$

$$m = -5 \qquad n = -3$$

Calculamos:

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

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