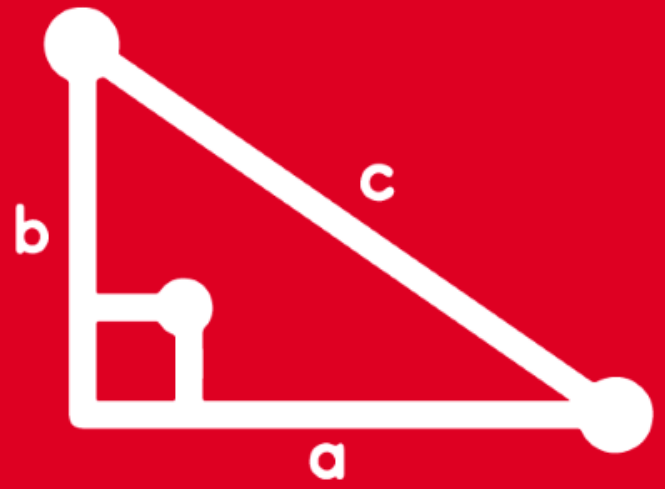
TRIGONOMETRY

TOMO VII

1st

SECONDARY

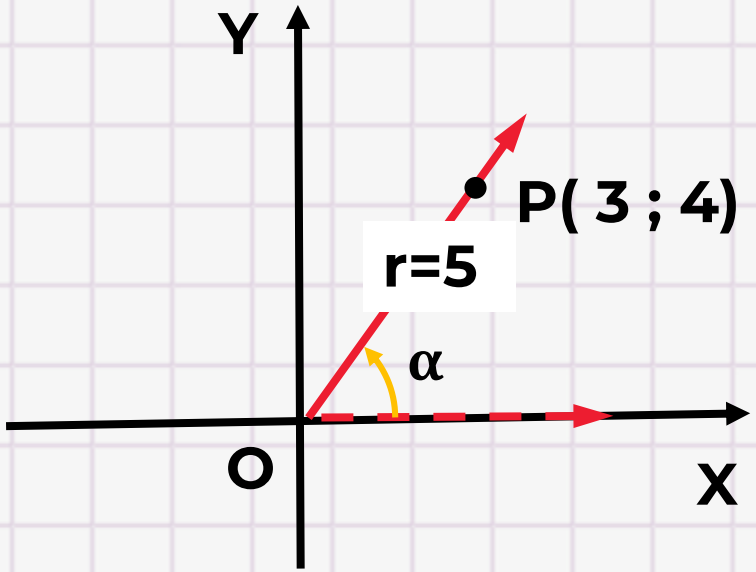


FEEDBACK

SACO OLIVEROS

HELICOPRACTICE 1

1. Del gráfico, complete los espacios en blanco:



Recuerda:

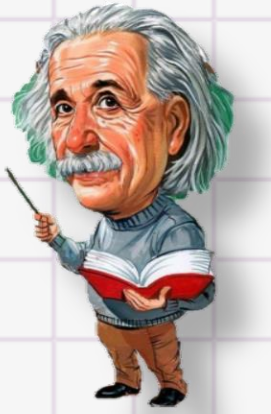
$\text{sen}\alpha = \frac{y}{r}$, $\cos\alpha = \frac{x}{r}$, $\tan\alpha = \frac{y}{x}$

Resolución:

- $\text{sen}(\alpha) = \frac{4}{5}$
- $\cos(\alpha) = \frac{3}{5}$
- $\tan(\alpha) = \frac{4}{3}$

$x = 3$	$y = 4$	$r = 5$

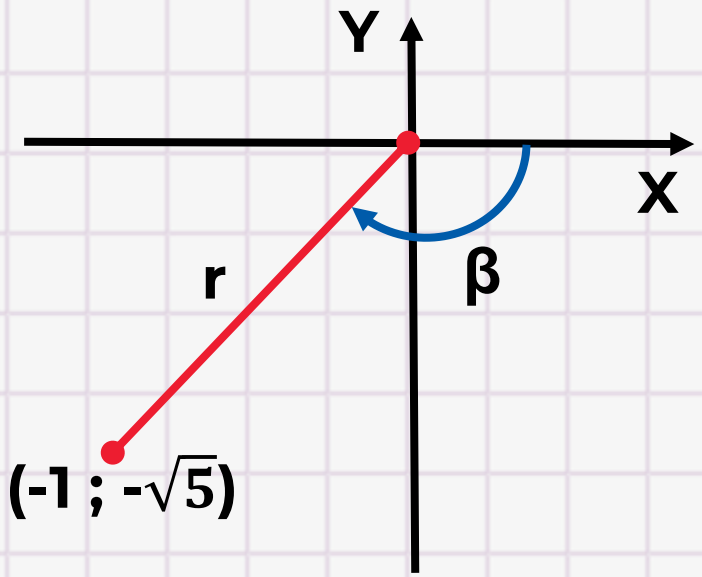
¡Muy bien!



HELICOPRACTICE 2

Del gráfico, efectúe

$E = sen^2\beta + cos^2\beta$



Recuerda:

$$sen\beta = \frac{y}{r} \quad , \quad cos\beta = \frac{x}{r}$$

Resolución:

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

$$r = \sqrt{(-1)^2 + (-\sqrt{5})^2}$$

$$r = \sqrt{1 + 5}$$

$$r = \sqrt{6}$$

$x = -1$	$y = -\sqrt{5}$	$r = \sqrt{6}$

Reemplazamos en E:

$$E = sen^2\beta + cos^2\beta$$

$$E = \left(\frac{-\sqrt{5}}{\sqrt{6}}\right)^2 + \left(\frac{-1}{\sqrt{6}}\right)^2$$

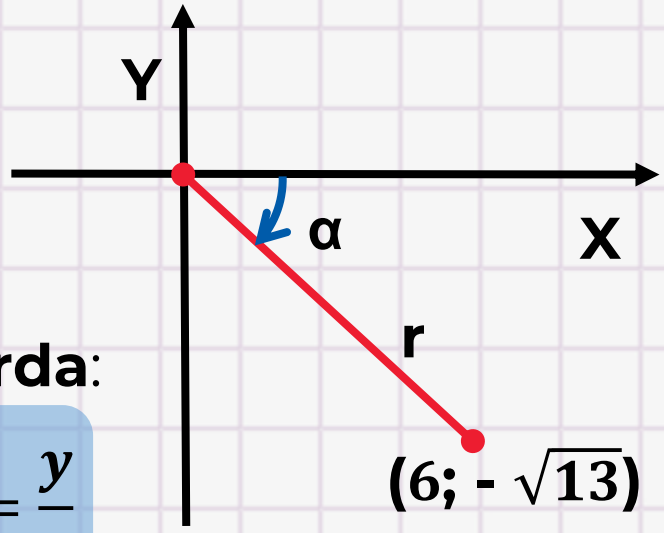
$$E = \frac{5}{6} + \frac{1}{6}$$

$$\therefore E = 1$$

HELICOPRACTICE 3

Ángel ha rendido su examen de trigonometría obteniendo una calificación P. Para averiguar dicha calificación tendrás que resolver lo siguiente:

$$P = 49\text{sen}^2\alpha + 3$$



Recuerda:

$$\text{sen}\alpha = \frac{y}{r}$$

¿Cuál es la nota de Ángel?

Resolución:

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

$$r = \sqrt{(6)^2 + (-\sqrt{13})^2}$$

$$r = \sqrt{36 + 13}$$

$$r = \sqrt{49}$$

$$r = 7$$

$x = 6$	$y = -\sqrt{13}$	$r = 7$

Reemplazamos en P:

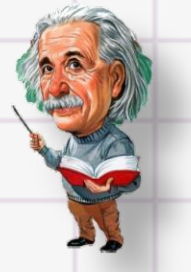
$$P = 49\text{sen}^2\alpha + 3$$

$$P = 49\left(\frac{-\sqrt{13}}{7}\right)^2 + 3$$

$$P = \cancel{49}\left(\frac{13}{\cancel{49}}\right) + 3$$

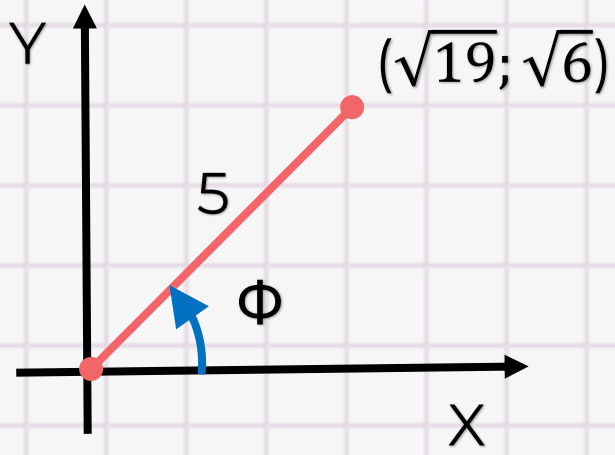
$$\therefore P = 16$$

¡Muy bien!



HELICOPRACTICE 4

Del gráfico, complete los espacios en blanco:



Recuerda:

$$\cot\Phi = \frac{x}{y}\ ,\ \sec\Phi = \frac{r}{x}\ ,\ \csc\Phi = \frac{r}{y}$$

Resolución:

- $\cot(\Phi) = \dfrac{\sqrt{19}}{\sqrt{6}}$
- $\sec(\Phi) = \dfrac{5}{\sqrt{19}}$
- $\csc(\Phi) = \dfrac{5}{\sqrt{6}}$

$x = \sqrt{19}$	$y = \sqrt{6}$	$r = 5$

Calculamos r:

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

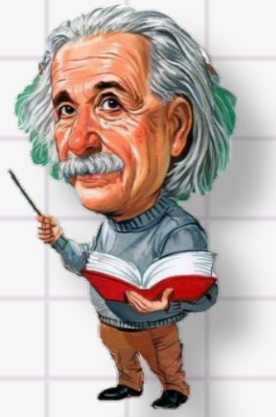
$$r = \sqrt{(\sqrt{19})^2 + (\sqrt{6})^2}$$

$$r = \sqrt{19 + 6}$$

$$r = \sqrt{25}$$

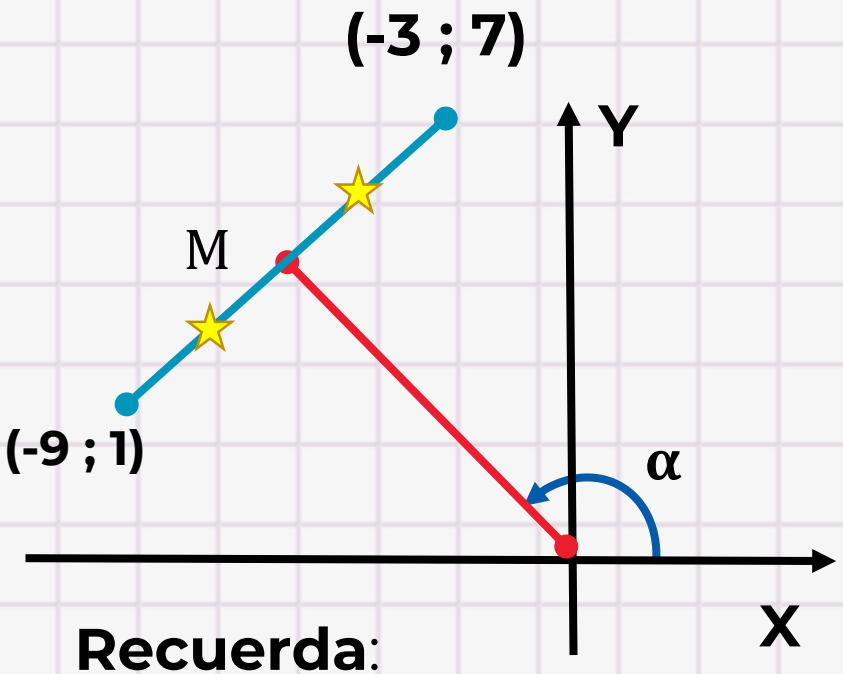
$$r = 5$$

¡Muy bien!



HELICOPRACTICE 5

Del gráfico, calcule cotα



Recuerda:

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

Resolución:

Calculamos la coordenada del punto M

$$M\begin{cases} x = \dfrac{-9+(-3)}{2} = -6 \\ y = \dfrac{1+7}{2} = 4 \end{cases}$$

$$\therefore M(-6;4)$$

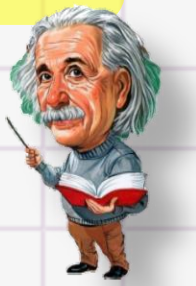
$(-6;4)$

Reemplazamos:

$x = -6$	$y = 4$

$$\cot\alpha = \frac{-\cancel{6}}{\cancel{4}} = -\frac{3}{2}$$

¡Muy bien!

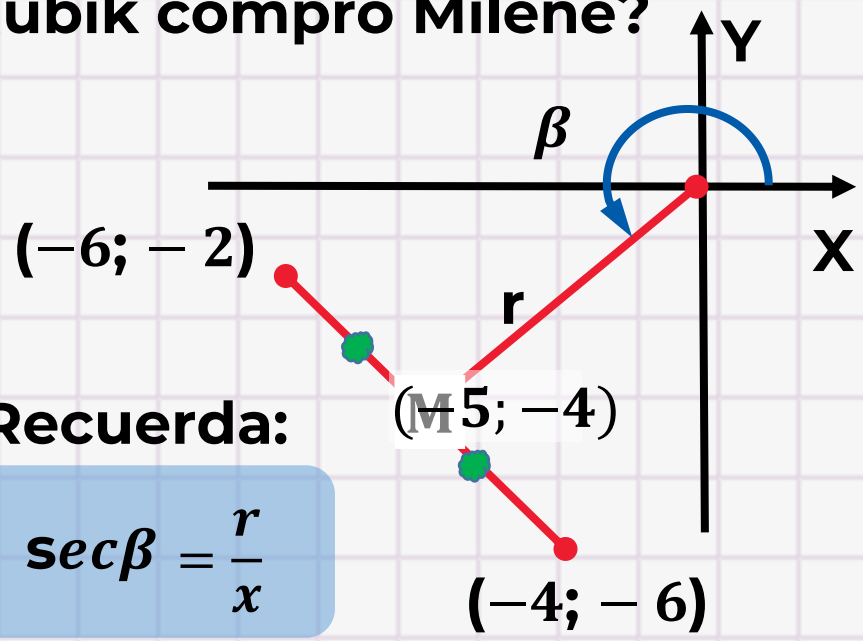


HELICOPRACTICE 6

Milene ha comprado cierta cantidad de cubos Rubick para venderlos en su librería, dicha cantidad se expresa de la siguiente manera:

$$A = 7 + 25\text{Sec}^2\beta$$

¿Cuántas docenas de cubos Rubik compro Milene?



Recuerda:

$$sec\beta = \frac{r}{x}$$

Resolución:

Calculamos la coordenada del punto M.

$$M\begin{cases} x = \dfrac{-6+(-4)}{2} = -5 \\ y = \dfrac{-2+(-6)}{2} = -4 \end{cases}$$

$$\therefore M(-5;-4)$$

Calculamos r:

$$r = \sqrt{(-5)^2 + (-4)^2}$$

$$r = \sqrt{25 + 16}$$

$$r = \sqrt{41}$$

En A

$x = -5$	$y = -4$	$r = \sqrt{41}$

$$A = 7 + 25sec^2\beta$$

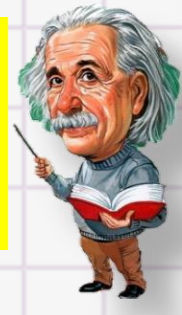
$$A = 7 + 25\left(\frac{\sqrt{41}}{-5}\right)^2$$

$$A = 7 + \cancel{25}\left(\frac{41}{\cancel{25}}\right)$$

$$A = 48$$

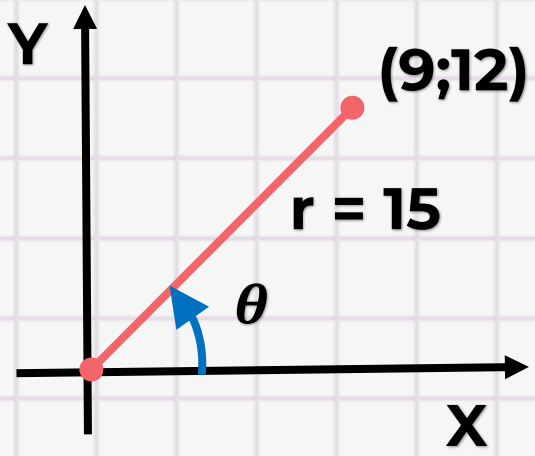
Milene compro 4 docenas de cubos Rubick

¡Muy bien!



HELICOPRACTICE 7

Según la figura, complete la tabla de razones trigonométricas.



Recuerda:

$$\text{sen}\theta = \frac{y}{r}\ ,\ \sec\theta = \frac{r}{x}\ ,\ \cot\theta = \frac{x}{y}$$

Resolución:

- $15\text{sen}(\theta) = 15\left(\frac{12}{15}\right) = 12$
- $18\sec(\theta) = 18\left(\frac{15}{9}\right) = 30$
- $12\cot(\theta) = 12\left(\frac{9}{12}\right) = 9$

Calculamos r:

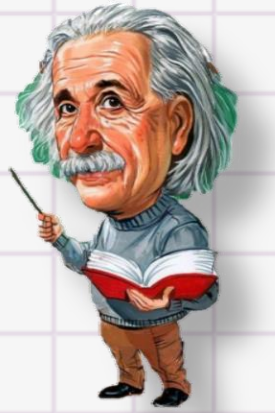
$$r = \sqrt{(9)^2 + (12)^2}$$

$$r = \sqrt{81 + 144}$$

$$r = \sqrt{225} \qquad r = 15$$

$x = 9$	$y = 12$	$r = 15$

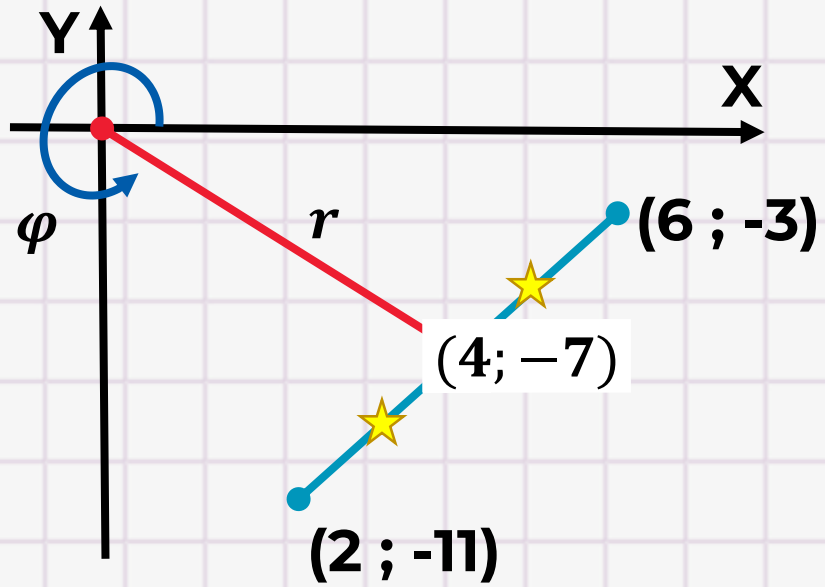
¡Muy bien!



HELICOPRACTICE 8

Del gráfico, efectúe

$$E = 21(sen^2\varphi + cos^2\varphi)$$



Recuerda:

$$sen\varphi = \frac{y}{r} \quad , cos\varphi = \frac{x}{r}$$

Resolución:

Calculamos la coordenada del punto M

$$M\begin{cases} x = \dfrac{2 + 6}{2} = 4 \\ y = \dfrac{-11 + (-3)}{2} = -7 \end{cases}$$

$$\therefore M(4; -7)$$

Calculamos el radio:

$$r = \sqrt{(4)^2 + (-7)^2}$$

$$r = \sqrt{16 + 49}$$

$$r = \sqrt{65}$$

Reemplazamos en E:

$$E = 21(sen^2\varphi + cos^2\varphi)$$

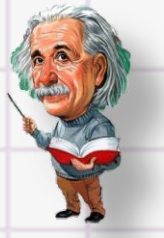
$x = 4$	$y = -7$	$r = \sqrt{65}$

$$E = 21\left[\left(\frac{-7}{\sqrt{65}}\right)^2 + \left(\frac{4}{\sqrt{65}}\right)^2\right]$$

$$E = 21\left(\frac{49}{65} + \frac{16}{65}\right)$$

$$E = 21\left(\frac{\cancel{65}}{\cancel{65}}\right)$$

$$\therefore E = 21$$



HELICOPRACTICE 9

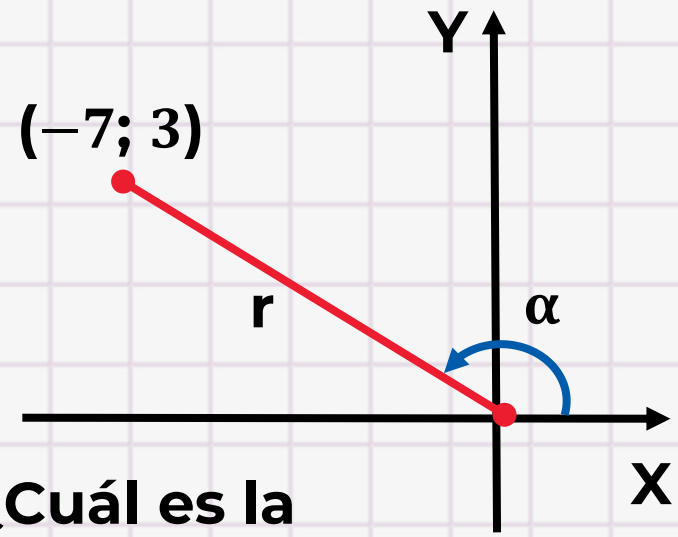
Sebastián ha rendido su examen de trigonometría obteniendo una calificación A. Para obtener dicha calificación tendrás que resolver lo siguiente:

$A = \sqrt{58}\text{sen}\alpha - 6\cot\alpha$

Recuerda:

$$\text{sen}\varphi = \frac{y}{r}$$

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



¿Cuál es la calificación de Sebastián?

Resolución:

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

$$r = \sqrt{49 + 9}$$

$$r = \sqrt{58}$$

$x = -7$	$y = 3$	$r = \sqrt{58}$

En A

$A = \sqrt{58}\text{sen}\alpha - 6\cot\alpha$

$$A = \cancel{\sqrt{58}}\left(\frac{3}{\cancel{\sqrt{58}}}\right) - \cancel{6}\left(\frac{-7}{\cancel{3}}\right)$$

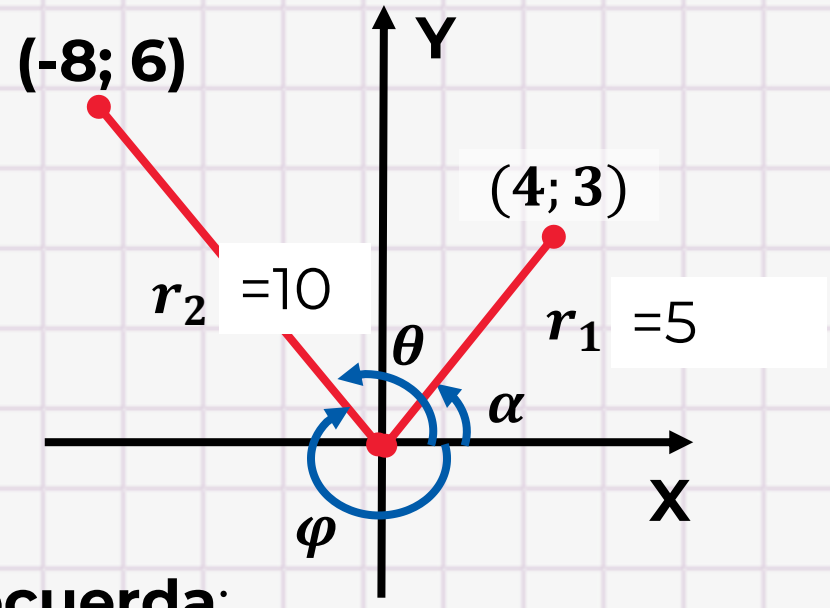
$A = 3 + 14 = 17$

La calificación de Sebastián es 17.

¡Muy bien!

HELICOPRACTICE 10

Efectúe $E = \text{sen}\theta - \cos\alpha + \sec\varphi$, a partir del gráfico mostrado.



Recuerda:

$$\text{sen}\theta = \frac{y}{r} \qquad \cos\theta = \frac{x}{r} \qquad \sec\theta = \frac{r}{x}$$

Resolución:

Calculamos r1:

$$r_1 = \sqrt{(4)^2 + (3)^2}$$

$$r_1 = \sqrt{16 + 9}$$

$$r_1 = \sqrt{25} \qquad r_1 = 5$$

Calculamos r2:

$$r_2 = \sqrt{(-8)^2 + (6)^2}$$

$$r_2 = \sqrt{64 + 36}$$

$$r_2 = \sqrt{100} \qquad r_2 = 10$$

En E:

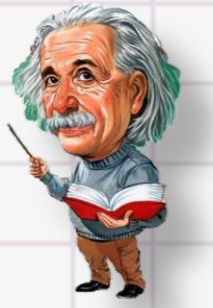
$$E = \text{sen}\theta - \cos\alpha + \sec\varphi$$

$$E = \left(\frac{3}{5}\right) - \left(\frac{4}{5}\right) + \left(\frac{-5}{4}\right)$$

$$E = \left(\frac{-1}{5}\right) + \left(\frac{-5}{4}\right)$$

$$E = \frac{-4 + (-25)}{20}$$

$$\therefore E = -\frac{29}{20}$$



¡Great!


SACO
OLIVEROS