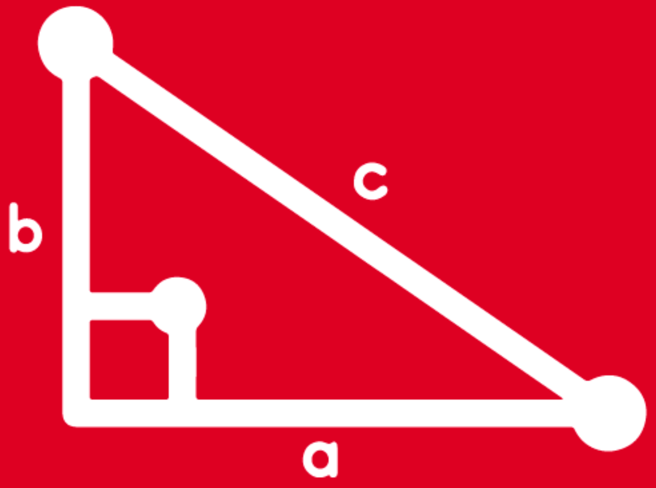
TRIGONOMETRY



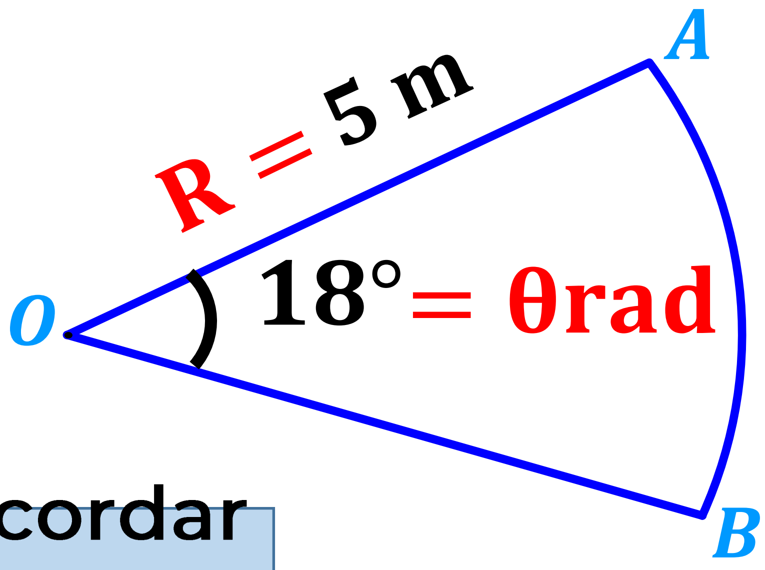
3th
SECONDARY

FEEDBACK
TOMO II

SACO OLIVEROS

1

¿Cuál es el área de un sector circular cuyo ángulo central mide 18° y su radio mide 5m?



Recordar:

Área del sector circular: $S = \frac{1}{2}\theta R^2$

RESOLUCIÓN:

Convirtiendo el ángulo al sistema radial:

$$\theta\text{rad} = \cancel{18}° \times \frac{\pi\ \text{rad}}{\cancel{180}°} = \frac{\pi}{10}\text{rad}$$

$$\Rightarrow \theta\text{rad} = \frac{\pi}{10}\text{rad} \Rightarrow \theta = \frac{\pi}{10}$$

Área del sector circular

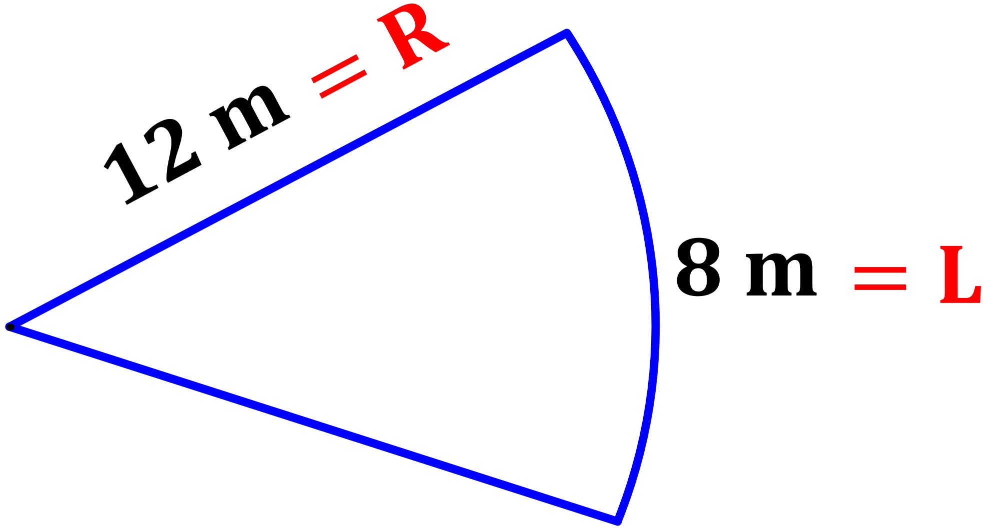
$$\Rightarrow S = \frac{1}{2}\left(\frac{\pi}{10}\right)(5\ \text{m})^2$$

$$S = \frac{25\pi}{20}\text{m}^2$$

$$\boxed{\therefore S = \frac{5\pi}{4}\ \text{m}^2}$$

2

Del gráfico, calcule el área del sector AOB.



Recordar:

Área del sector circular:

$$S = \frac{LR}{2}$$

RESOLUCIÓN:

Calculando el área del sector circular

$$S = \frac{(8\text{m})(12\text{ m})}{2}$$

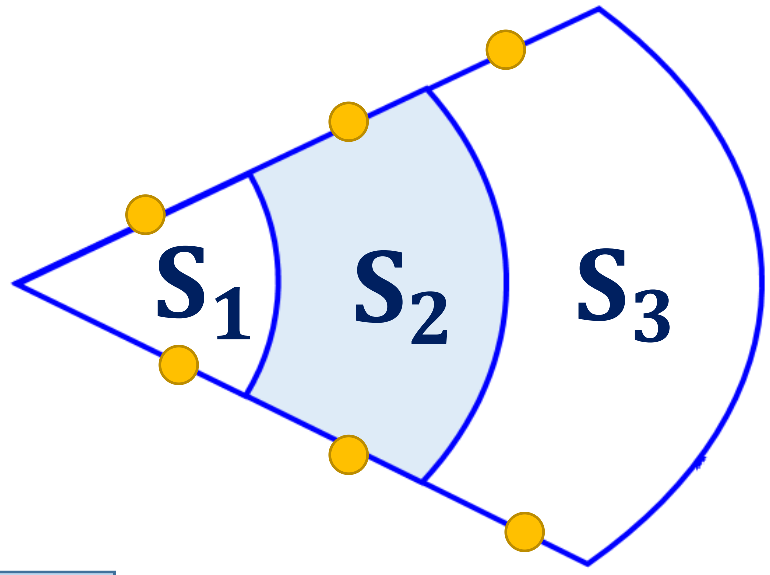
$$S = \frac{96\text{ m}^2}{2}$$

$$\boxed{\therefore S = 48\text{ m}^2}$$

3

Del gráfico, calcule

$$E = \frac{2S_2 + 4S_1}{S_3 - 3S_1}$$



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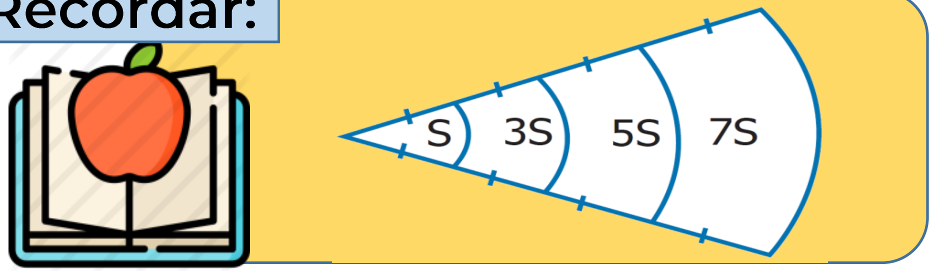


RESOLUCIÓN:

Aplicando la propiedad

$$\boxed{S_1 = S}$$
$$\boxed{S_2 = 3S}$$
$$\boxed{S_3 = 5S}$$

Reemplazando

$$E = \frac{2(3S) + 4(S)}{(5S) - 3(S)}$$

$$E = \frac{10S}{2S}$$

$$\boxed{\therefore E = 5}$$

4

Siendo: $\text{sen}\alpha = 0,96$ y α es ángulo agudo, efectúe:

$$P = \tan\alpha + \sec\alpha$$

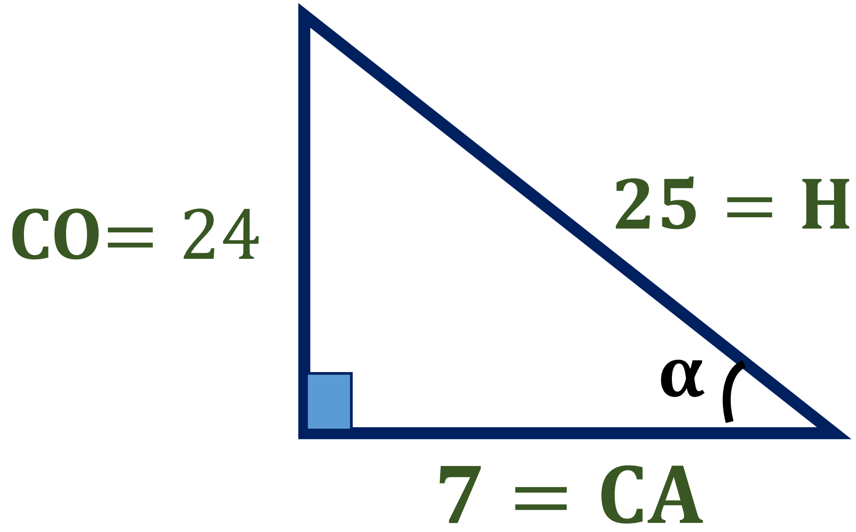
RESOLUCIÓN:

Dato :

$$\text{sen}\alpha = \frac{CO}{H} = \frac{96}{100} = \frac{24}{25}$$

Recordar:

$$\text{sen}\alpha = \frac{CO}{H} \quad \tan\alpha = \frac{CO}{CA} \quad \sec\alpha = \frac{H}{CA}$$



Luego:

$$25^2 = (CA)^2 + (24)^2 \Rightarrow CA = 7$$

Reemplazando:

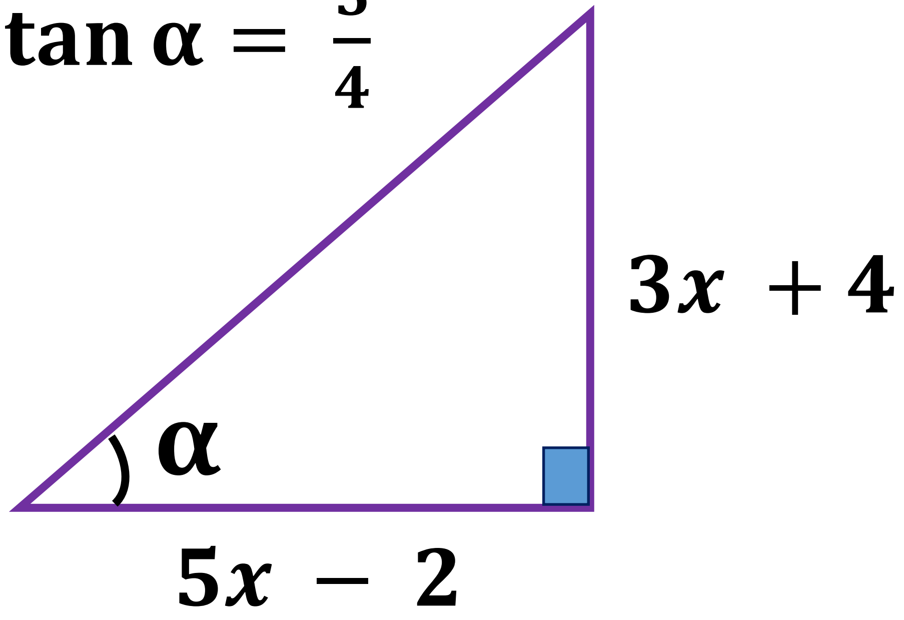
$$P = \frac{24}{7} + \frac{25}{7} = \frac{49}{7} = 7$$

$$\boxed{\therefore P = 7}$$

5

Del gráfico, calcule el valor de x si:

$$\tan\alpha = \frac{5}{4}$$



Recordar:

$$\tan\alpha = \frac{CO}{CA}$$

RESOLUCIÓN:

$$\tan\alpha = \frac{5}{4} \quad \text{......} \ (1)$$

$$\tan\alpha = \frac{3x+4}{5x-2} \ \text{...} \ (2)$$

Igualamos (1) y (2)

$$\frac{5}{4} = \frac{3x+4}{5x-2}$$

$$5(5x-2) = 4(3x+4)$$

$$25x - 10 = 12x + 16$$

$$13x = 26$$

$$\therefore \quad x = 2$$

6

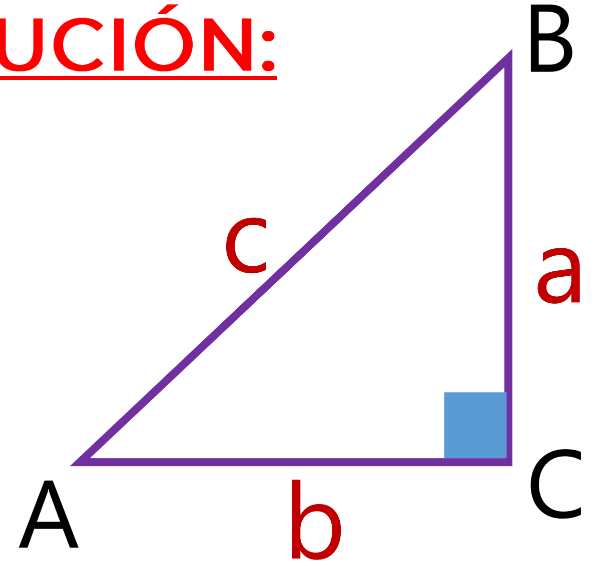
En un triángulo rectángulo $\mathbf{ABC}\ (\mathbf{m}\sphericalangle\mathbf{C} = 90°)$, reduzca

$$\mathbf{K = 6senA.secB + 4tanA.tanB}$$

Recordar:

$$\mathbf{sen\alpha = \frac{CO}{H}} \qquad \mathbf{sec\alpha = \frac{H}{CA}} \qquad \mathbf{tan\alpha = \frac{CO}{CA}}$$

RESOLUCIÓN:



$$\mathbf{K = 6senA.secB + 4tanA.tanB}$$

$$\mathbf{K = 6\left(\frac{a}{c}\right)\left(\frac{c}{a}\right) + 4\left(\frac{a}{b}\right)\left(\frac{b}{a}\right)}$$

$$\mathbf{K = 6 + 4}$$

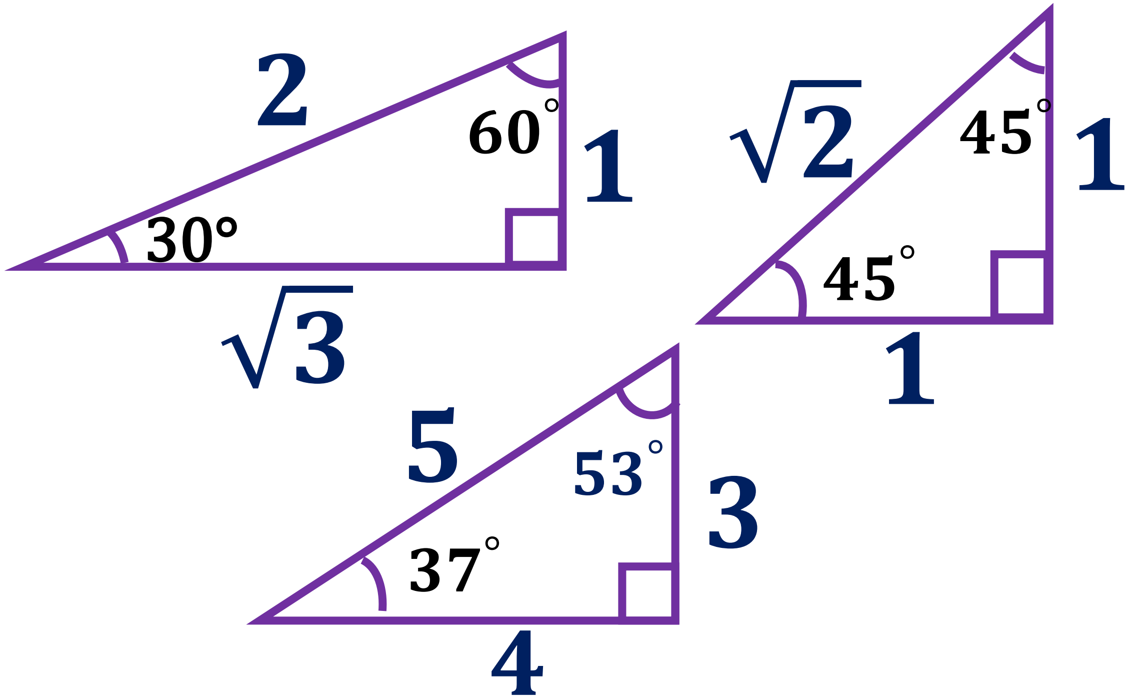
$$\boxed{\therefore \mathbf{K = 10}}$$

7

Efectúe:

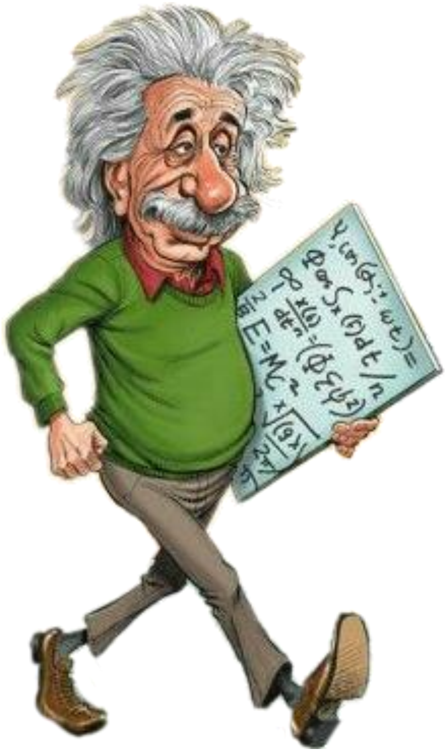
$$\mathbf{E = cos53°.sen30°.tan45°}$$

RESOLUCIÓN:



$$\mathbf{E} = \left(\frac{3}{5}\right)\left(\frac{1}{2}\right)(1)$$

$$\mathbf{E} = \frac{3.1.1}{5.2}$$



$$\therefore\ E = \frac{3}{10}$$

8

Halle el valor de x Si: $\dfrac{10\cos 37°}{\cot^2 30°} = \dfrac{2x+2}{2x-3}$

RESOLUCIÓN:

$$\frac{\overset{2}{\cancel{10}}\left(\dfrac{4}{\cancel{5}}\right)}{\sqrt{3}^{2}} = \frac{2x+2}{2x-3}$$

$$\frac{8}{3} = \frac{2x+2}{2x-3}$$

$$8(2x-3) = 3(2x+2)$$

$$16x - 24 = 6x + 6$$

$$16x - 6x = 6 + 24$$

$$10x = 30$$

$$\boxed{\therefore\ x = 3}$$

9

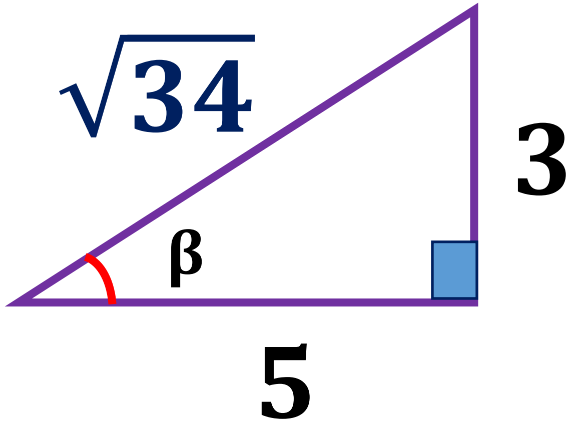
Si $\tan\phi = \text{sen}37°$, siendo ϕ un ángulo agudo; efectúe:

$$M = \sqrt{34}\,(\text{sen}\phi + \cos\phi)$$

RESOLUCIÓN:

Del dato tenemos:

$$\tan\phi = \frac{3}{5} = \frac{CO}{CA}$$



Piden:

$$M = \sqrt{34}(\text{sen}\phi + \cos\phi)$$

$$M = \sqrt{34}\left(\frac{3}{\sqrt{34}} + \frac{5}{\sqrt{34}}\right)$$

$$\boxed{\therefore M = 8}$$

10

David desea comprar un terreno en el Agustino que tiene forma rectangular, si cada metro cuadrado esta \$900 ¿Cuánto estará el terreno?

$(10sen37°)\text{m}$

$(9\sec^2 45°)\text{m}$

RESOLUCIÓN:

Dimensiones del terreno

$$(10\text{sen}37°)\text{m} = \left(10.\frac{3}{5}\right)\text{m} = 6\text{m}$$

$$(9\sec^2 45°)\text{m} = \left(9\sqrt{2}^2\right)\text{m} = 18\text{m}$$

Área del terreno

$$S = (6\text{m})(18\text{m}) \Rightarrow \boldsymbol{S = 108\text{m}^2}$$

Costo del terreno

$$C = (108)(900) \Rightarrow \boxed{\therefore \$\ \mathbf{97200}}$$