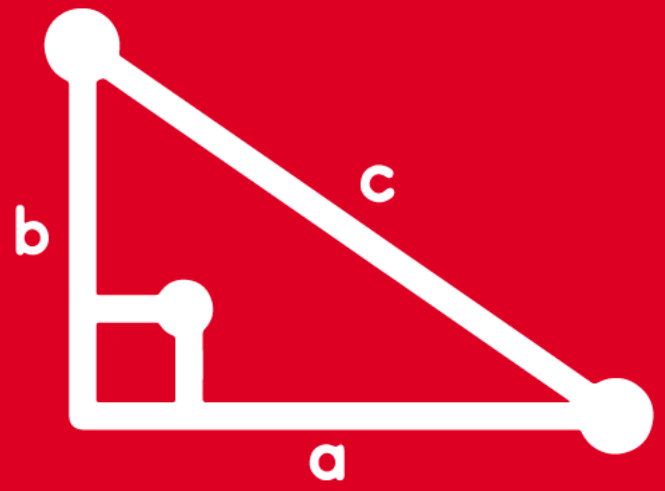
TRIGONOMETRY

Chapter 7,8 and 9

2nd
SECONDARY



REVIEW

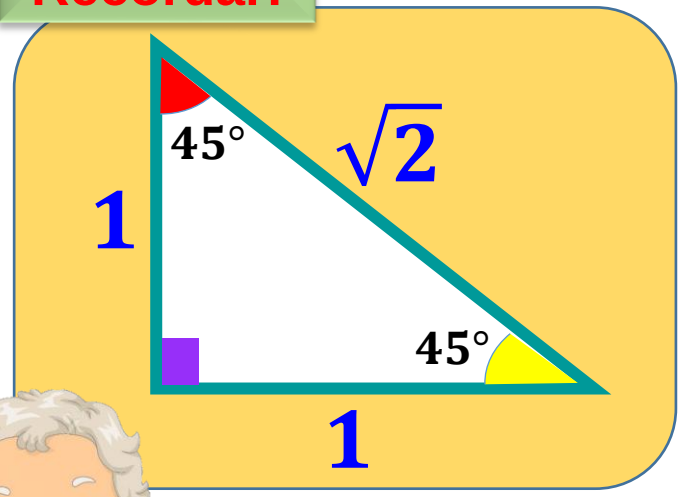
SACO OLIVEROS

HELICOPRACTICE 1

Efectúe:

$$A = (5\cos 45° + 6\operatorname{sen} 45°)\sec 45°$$

Recordar:



Resolución:

$$A = \left[5 \times \left(\frac{1}{\sqrt{2}}\right) + 6 \times \left(\frac{1}{\sqrt{2}}\right)\right] \times (\sqrt{2})$$

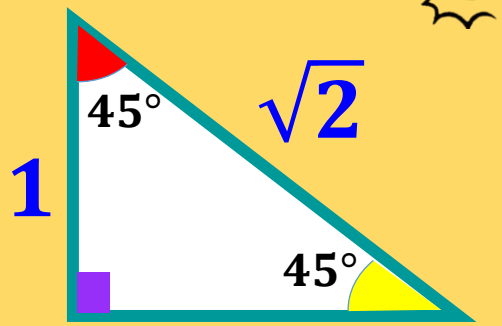
$$A = \left[\frac{11}{\sqrt{2}}\right] \times (\sqrt{2})$$

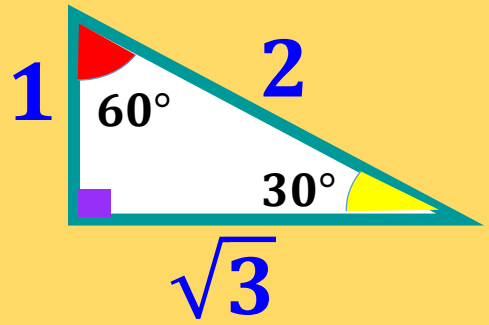
$$\therefore A = 11$$

HELICOPRACTICE 2

Halle el valor de: $A = (6\cot 45°)^{\csc 30°} + \left(12\sqrt{3}\tan 60°\right)^{\text{sen } 30°}$

Recordar:





Resolución:

$$A = [6 \times (1)]^2 + \left[12\sqrt{3} \times \left(\sqrt{3}\right)\right]^{\frac{1}{2}}$$

$$A = 36 + [36]^{\frac{1}{2}}$$

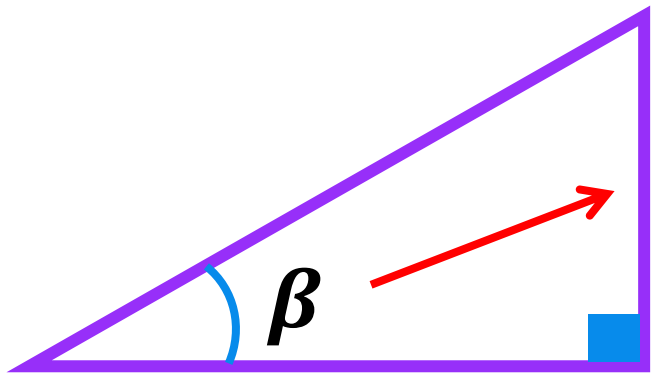
$$A = 36 + \sqrt{36}$$

$$A = 36 + 6$$

$$\therefore A = 42$$

HELICOPRACTICE 3

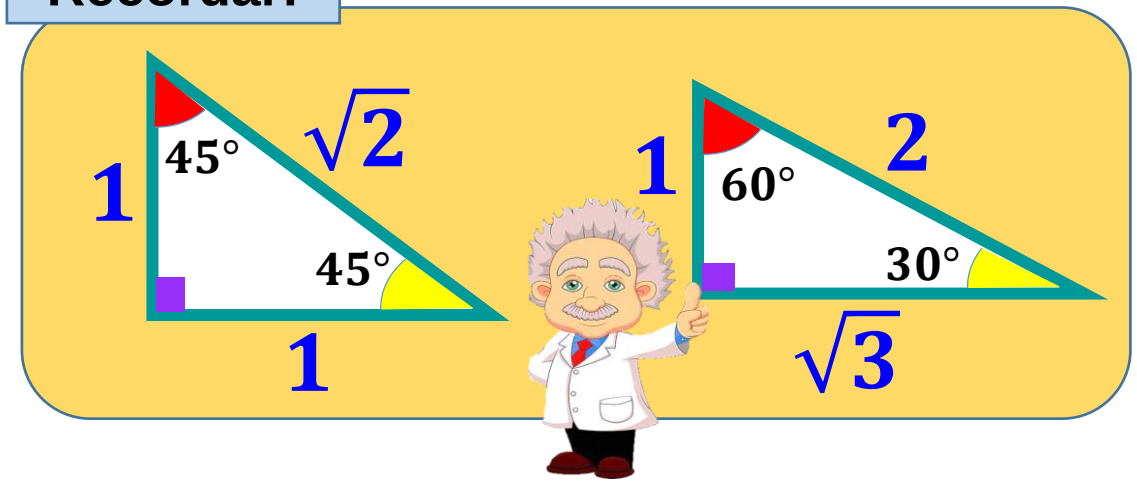
Del gráfico, calcule $tan\,\beta$.



$3\sqrt{2}\,sec\,45°$

$csc^2\,30°$

Recordar:



Resolución:

$$tan\,\beta = \frac{3\sqrt{2}\,sec\,45°}{csc^2\,30°}$$

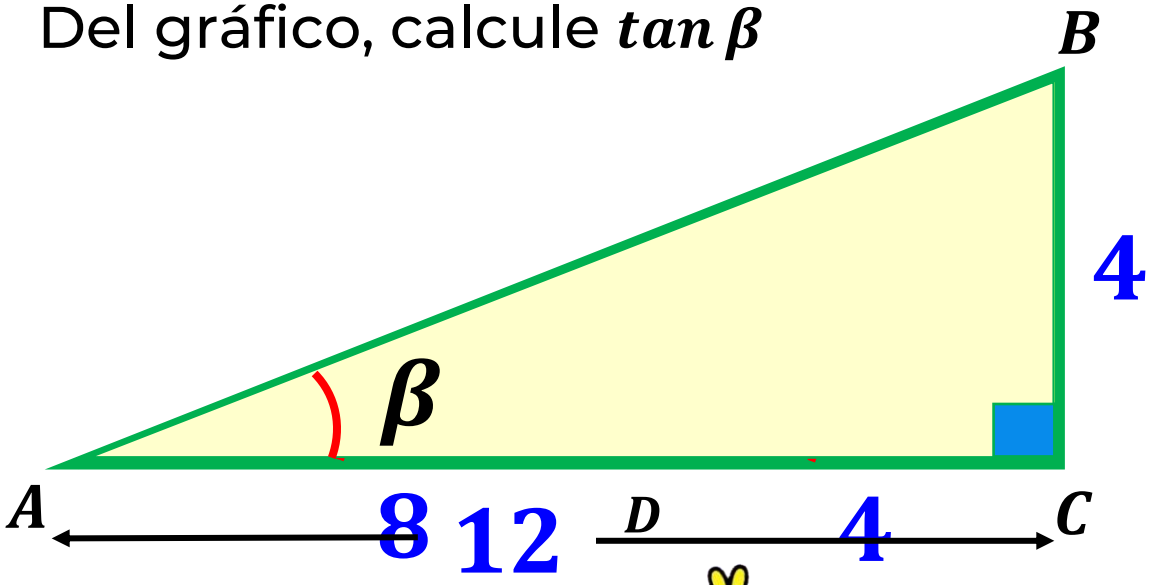
$$tan\,\beta = \frac{3\sqrt{2} \times (\sqrt{2})}{(2)^2}$$

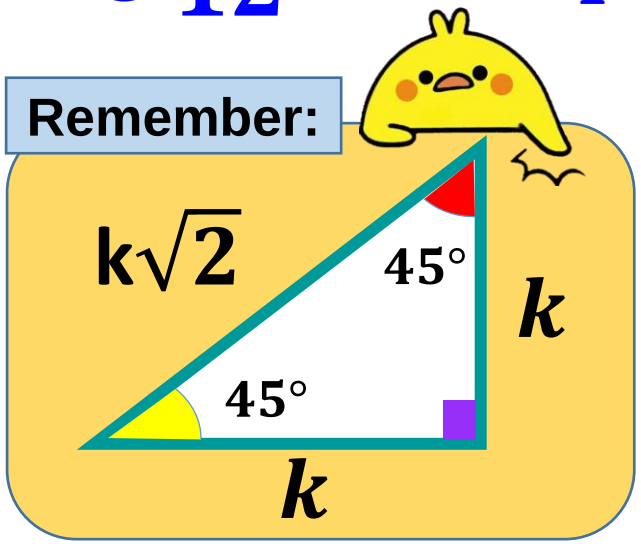
$$tan\,\beta = \frac{6}{4}$$

$$\therefore tan\,\beta = \frac{3}{2}$$

HELICOPRACTICE 4

Del gráfico, calcule $tan\,\beta$





Resolución:

En el ΔBCD (Notable de 45°)

Se observa: $DC = 4$

$\Rightarrow BC = 4$

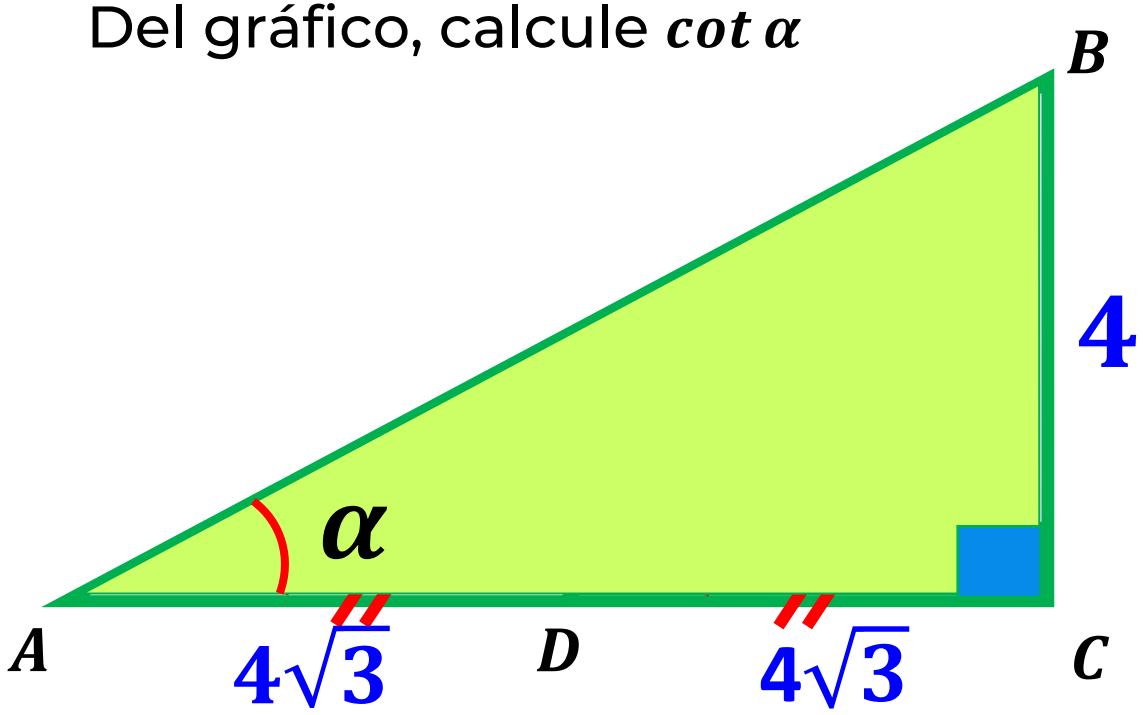
Calculamos:

$$tan\,\beta = \frac{4}{12}$$

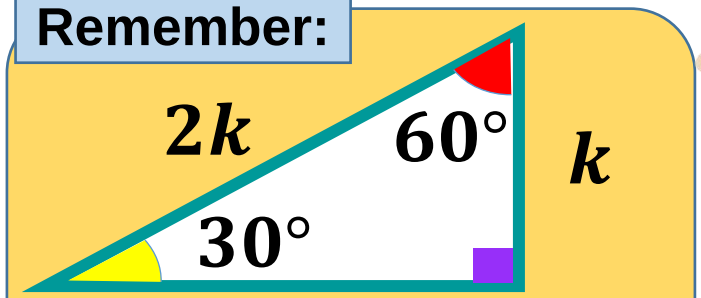
$$\therefore tan\,\beta = \frac{1}{3}$$

HELICOPRACTICE 5

Del gráfico, calcule $\cot \alpha$



Remember:



Resolución:

En el ΔBCD (Notable de 30° y 60°)

$$\underbrace{BC} = 4$$

$$k = 4$$

Luego: $DC = 4\sqrt{3}$

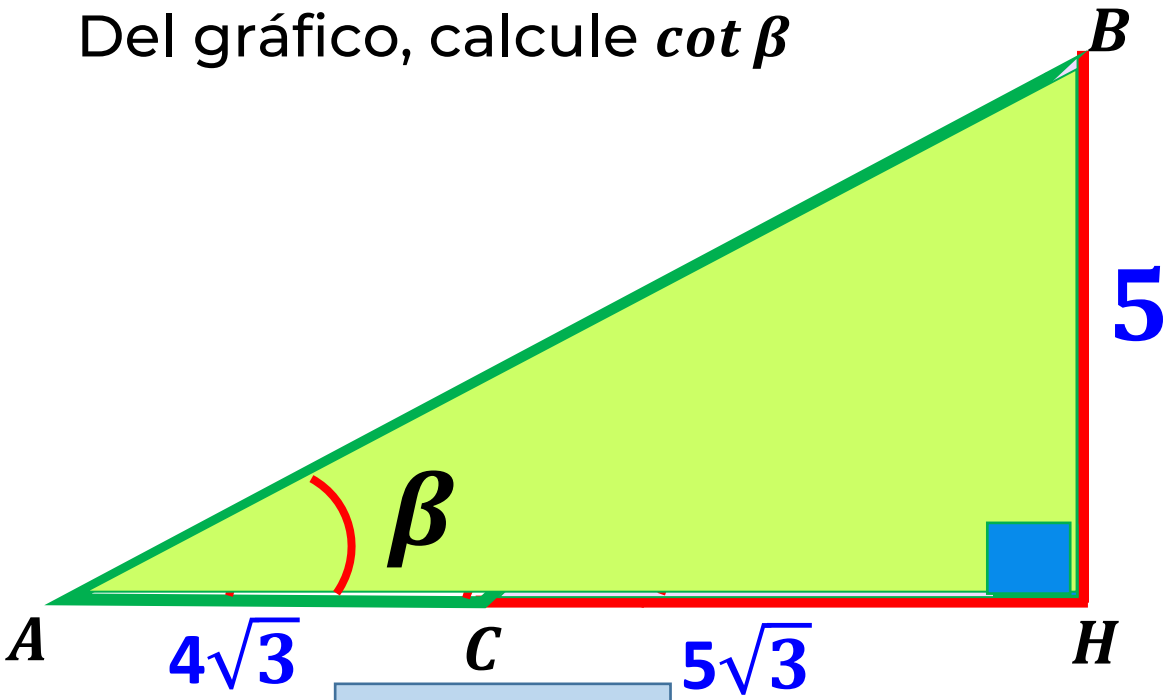
Calculamos:

$$\cot \alpha = \frac{8\sqrt{3}}{4}$$

$$\therefore \cot \alpha = 2\sqrt{3}$$

HELICOPRACTICE 6

Del gráfico, calcule $\cot\beta$



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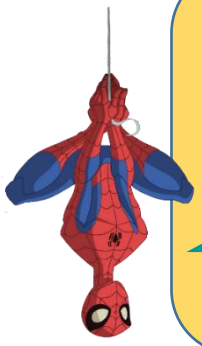
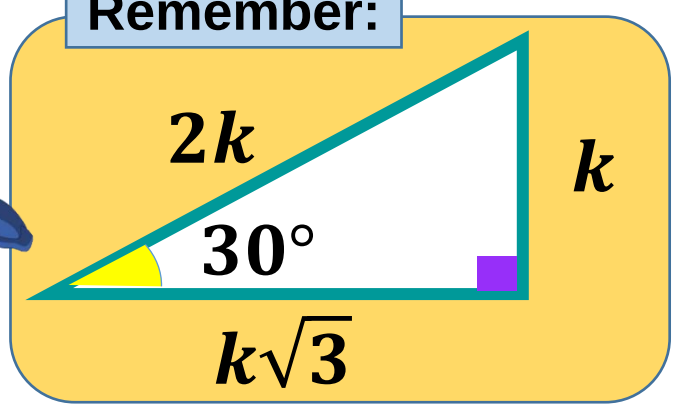




Resolución:

En el ΔBHC (Notable de 30° y 60°)

Se observa

$$\underline{BC} = 10$$

$$2k = 10 \Rightarrow k = 5$$

Luego:

$$BH = 1(5) = 5$$

$$CH = \sqrt{3}(5) = 5\sqrt{3}$$

$$\therefore \cot\beta = \frac{9\sqrt{3}}{5}$$

HELICOPRACTICE 7

Efectúe $E = \frac{b}{a}$, Si $sen\,24° \cdot csc\,a = 1$

$tan\,36° \cdot cot\,b = 1$

Resolución:

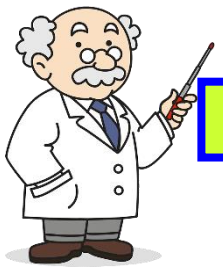
Del dato:

$$sen\,24° \cdot csc\,a = 1$$

$$\Rightarrow a = 24°$$

$$tan\,36° \cdot cot\,b = 1$$

$$\Rightarrow b = 36°$$



Remember:

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

Calculamos: $E = \frac{b}{a}$

$$E = \frac{36}{24}$$

Remember:

$$tan\,\beta \cdot cot\,\beta = 1$$

$$\therefore E = \frac{3}{2}$$

HELICOPRACTICE 8

Halle el valor de x, si: $\tan 8x \cdot \cot(2x + 66°) = 1$

Resolución:

Del dato:

$$\tan 8x \cdot \cot(2x + 66°) = 1$$

$$\Rightarrow \quad 8x = 2x + 66°$$

$$6x = 66°$$

$$\therefore x = 11°$$

Remember:

$$\tan \alpha \cdot \cot \alpha = 1$$

HELICOPRACTICE 9

Sabiendo que: $sen\,12x \cdot csc(4x + 40°) - 1 = 0$

Determine: $P = sen\,6x \cdot csc(8x - 10°)$

Resolución:

Del dato:

$$sen\,12x \cdot csc(4x + 40°) - 1 = 0$$

$$sen\,12x \cdot csc(4x + 40°) = 1$$

$$\Rightarrow 12x = 4x + 40°$$

$$8x = 40°$$

$$x = 5°$$

Calculamos:

$$P = sen\,6x \cdot csc(8x - 10°)$$

$$P = sen\,6(5°) \cdot csc(8(5°) - 10°)$$

$$P = sen\,30° \cdot csc(30°)$$

$$\therefore P = 1$$

Remember:

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

HELICOPRACTICE 10

Rodrigo es un niño al que le gusta cuidar su salud, diariamente sale a correr **50 min** alrededor del parque que esta cerca a su casa (el parque tiene forma rectangular, ver figura). Determine cuantos metros recorre en una 3 vueltas al parque.

∴ **En 3 vueltas al parque Rodrigo recorrerá 600m**

Resolución:

$$40\ tan\ 45°\ m = 40 \times (1)$$

$$\Rightarrow \boxed{40\ tan\ 45°\ m = 40m}$$

$$120\ cos\ 60°\ m = \overset{60}{\cancel{120}} \times \left(\frac{1}{\cancel{2}_{1}}\right)$$

$$\Rightarrow \boxed{120\ cos\ 60°\ m = 60m}$$

En una vuelta recorrerá:

$$1V = 40m + 60m + 40m + 60m$$

$$\Rightarrow \boxed{1V = 200\ m}$$