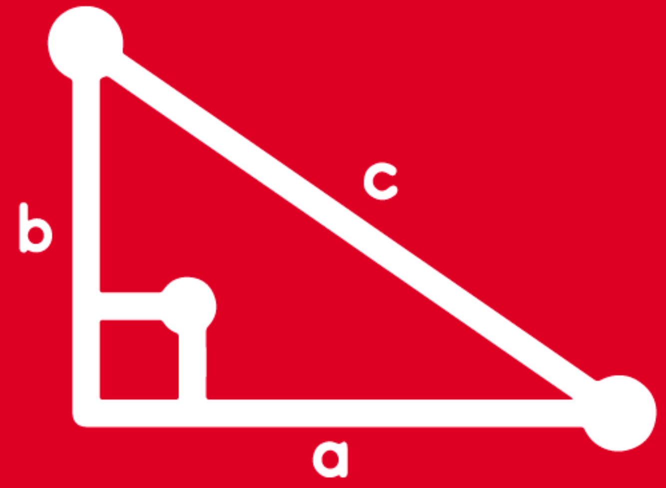
# TRIGONOMETRY

## Tomo 3




**1st**
**SECONDARY**

## Advisory

SACO OLIVEROS

# HELICOPRACTICE 1

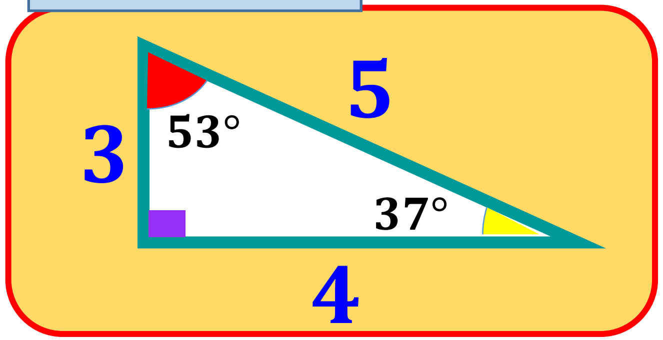
Escriba verdadero (V) o falso (F) según corresponda:

a. $4\cot 53° = 5$ ( *F* )

b. $50\,sen\,37° = 30$ ( *V* )

c. $12\sec 53° = 27$ ( *F* )

Recordar:




**Resolución:**

a. $4\cot 53° = \cancel{4} \times \left(\frac{3}{\cancel{4}}\right) = 3$

b. $50\,sen\,37° = \overset{10}{\cancel{50}} \times \left(\frac{3}{\underset{1}{\cancel{5}}}\right) = 30$

c. $12\sec 53° = \overset{4}{\cancel{12}} \times \left(\frac{5}{\underset{1}{\cancel{3}}}\right) = 20$

$\boxed{\therefore F; V; F}$

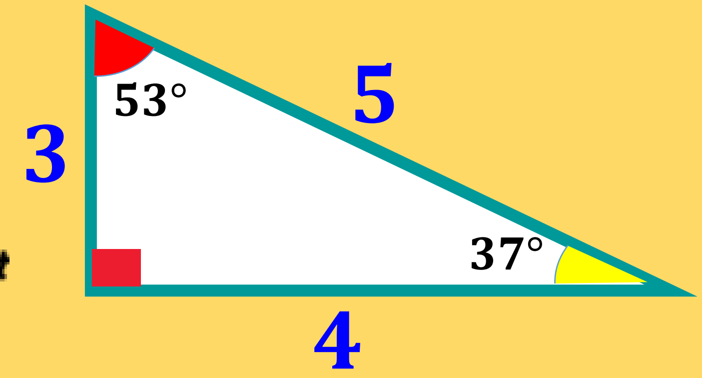
¡Genial!

# HELICOPRACTICE 2

**Efectúe:**

$$E=\frac{sec53°}{cot\,37°}+\frac{tan\,37°}{csc\,53°}$$

**Recordar:**




**Resolución:**

$$E=\frac{sec\,53°}{cot\,37°}+\frac{tan\,37°}{csc\,53°}$$

$$E=\frac{\frac{5}{3}}{\frac{4}{3}}+\frac{\frac{3}{4}}{\frac{5}{4}}$$

$$E=\frac{5\times\cancel{3}}{\cancel{3}\times 4}+\frac{3\times\cancel{4}}{\cancel{4}\times 5}$$

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

$$E=\frac{25+12}{20}$$

¡Excelente!

$$\therefore\ E=\frac{37}{20}$$

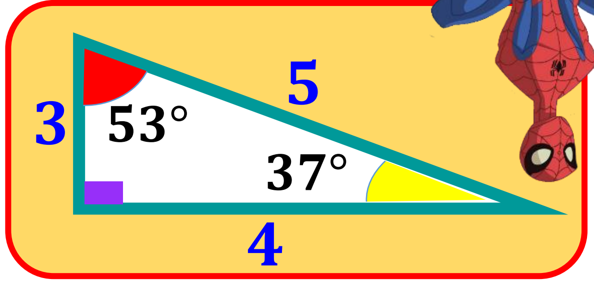
# HELICOPRACTICE 3

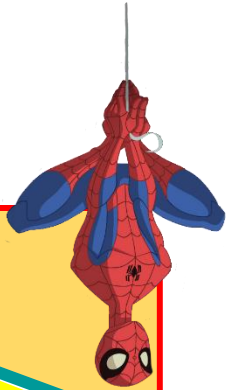
Resuelva y coloque el símbolo $>, <$ *o* $=$ según corresponda en los siguientes enunciados.

*a.* $18\,cot\,37° \;(>)\; 15\,sen\,53°$

*b.* $45\,cos\,37° \;(<)\; 36\,sec\,53°$

*c.* $32\,cot\,53° \;(<)\; 32\,sec\,37°$



¡Muy bien!

## Resolución:

$$a.\; 18\,cot\,37° = \overset{6}{\cancel{18}} \times \left(\frac{4}{\underset{1}{\cancel{3}}}\right)$$

$$\boxed{18\,cot\,37° = 24}$$

$$15\,sen\,53° = \overset{3}{\cancel{15}} \times \left(\frac{4}{\underset{1}{\cancel{5}}}\right)$$

$$\boxed{15\,sen\,53° = 12}$$

$$b.\; 45\,cos\,37° = \overset{9}{\cancel{45}} \times \left(\frac{4}{\underset{1}{\cancel{5}}}\right)$$

$$\boxed{45\,cos\,37° = 36}$$

$$36\,sec\,53° = \overset{12}{\cancel{36}} \times \left(\frac{5}{\underset{1}{\cancel{3}}}\right)$$

$$\boxed{36\,sec\,53° = 60}$$

$$c.\; 32\,cot\,53° = \overset{8}{\cancel{32}} \times \left(\frac{3}{\underset{1}{\cancel{4}}}\right)$$

$$\boxed{32\,cot\,53° = 24}$$

$$32\,sec\,37° = \overset{8}{\cancel{32}} \times \left(\frac{5}{\underset{1}{\cancel{4}}}\right)$$

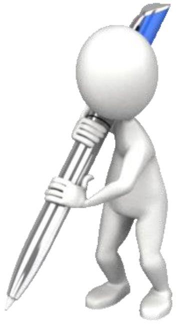
$$\boxed{32\,sec\,37° = 40}$$

# HELICOPRACTICE 4

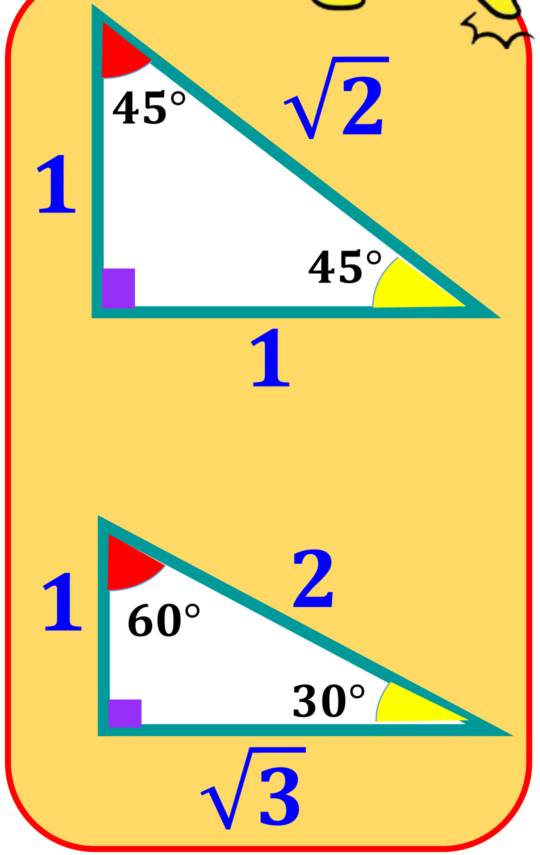
**Calcule A + B; si:**

$$A = \sqrt{3}\,cot\,60° + 2\,tan\,45° \qquad\qquad B = 2\sqrt{2}\,csc\,45° + sec\,60°$$

¡Sigue así!



**Recordar:**




**Resolución:**

$$A = \sqrt{3}\,cot\,60° + 2\,tan\,45°$$

$$A = \cancel{\sqrt{3}} \times \left(\frac{1}{\cancel{\sqrt{3}}}\right) + 2(1)$$

$$A = 1 + 2$$

$$A = 3$$

$$B = 2\sqrt{2}\,csc\,45° + sec\,60°$$

$$B = 2\sqrt{2} \times \left(\sqrt{2}\right) + (2)$$

$$B = 4 + 2$$

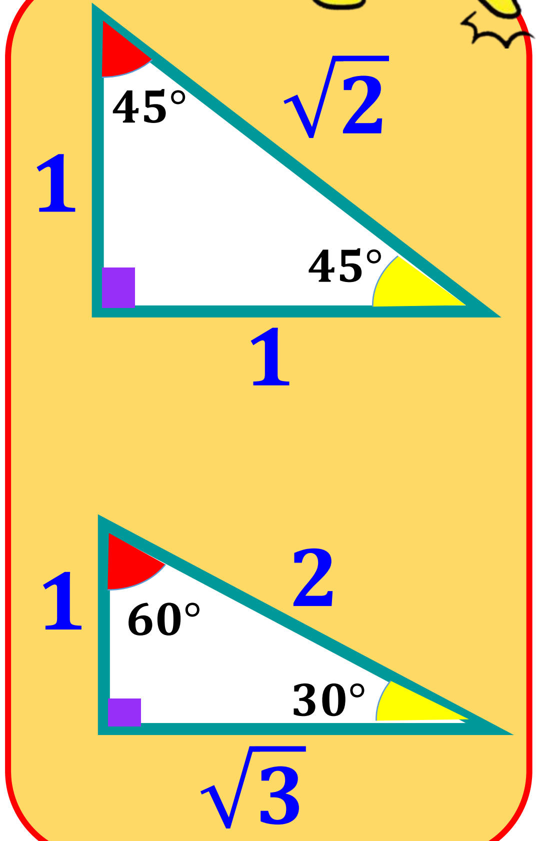
$$B = 6$$

$$\boxed{\therefore A + B = 9}$$

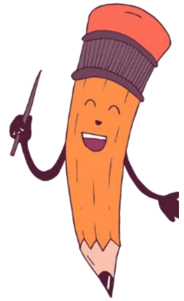
# HELICOPRACTICE 5

Indique el valor de y, en: $\dfrac{7y + \tan 45^\circ}{\csc 30^\circ} = \dfrac{y + \tan^2 60^\circ}{\sqrt{3}\,\tan 30^\circ}$

**Recordar:**




**Resolución:**



$$\frac{7y+1}{2} = \frac{y + \left(\sqrt{3}\right)^2}{\cancel{\sqrt{3}} \times \left(\dfrac{1}{\cancel{\sqrt{3}}}\right)}$$

$$\frac{7y+1}{2} = \frac{y+3}{1}$$

$$7y + 1 = 2(y+3)$$

$$7y + 1 = 2y + 6$$

$$5y = 5$$

$$\boxed{\therefore\ y = 1}$$

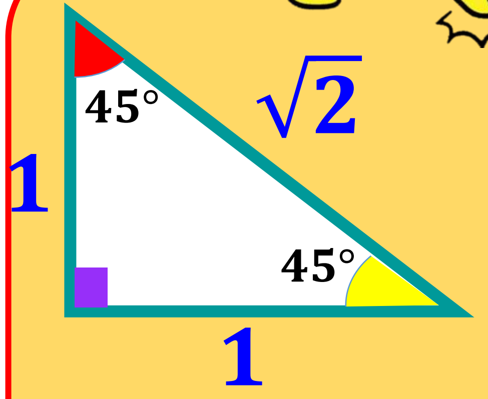
# HELICOPRACTICE 6

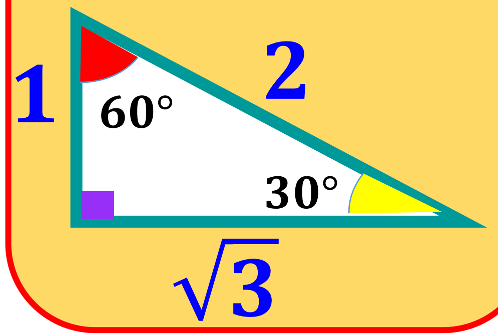
De las figuras mostradas, establezca una relación: $x < y$

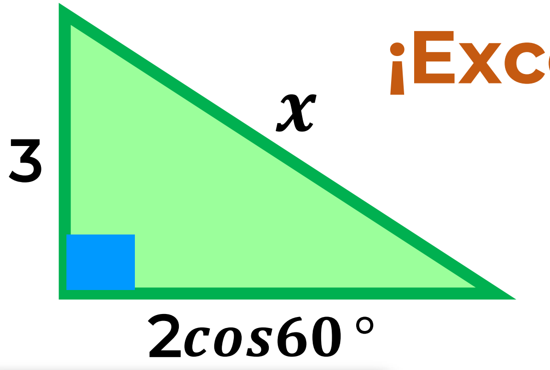
Por el teorema de Pitágoras:

$(\mathrm{H})^2 = (\mathrm{cateto})^2 + (\mathrm{cateto})^2$

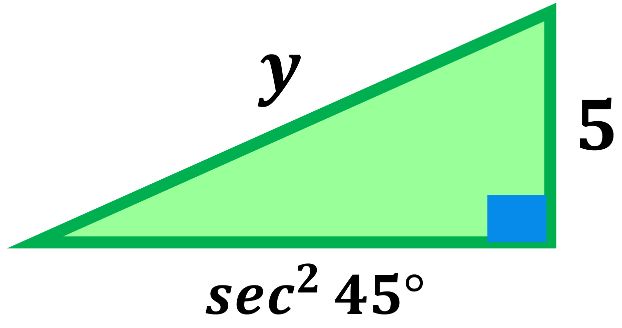
**Recordar:**




¡Excelente!




**Resolución:**

$$x^2 = (3)^2 + (2\cos 60°)^2$$

$$x^2 = 9 + \left[\cancel{2}\left(\frac{1}{\cancel{2}}\right)\right]^2$$

$$x^2 = 9 + 1$$

$$x^2 = 10 \Rightarrow \boxed{x = \sqrt{10}}$$

$$y^2 = (5)^2 + \left(sec^2 45°\right)^2$$

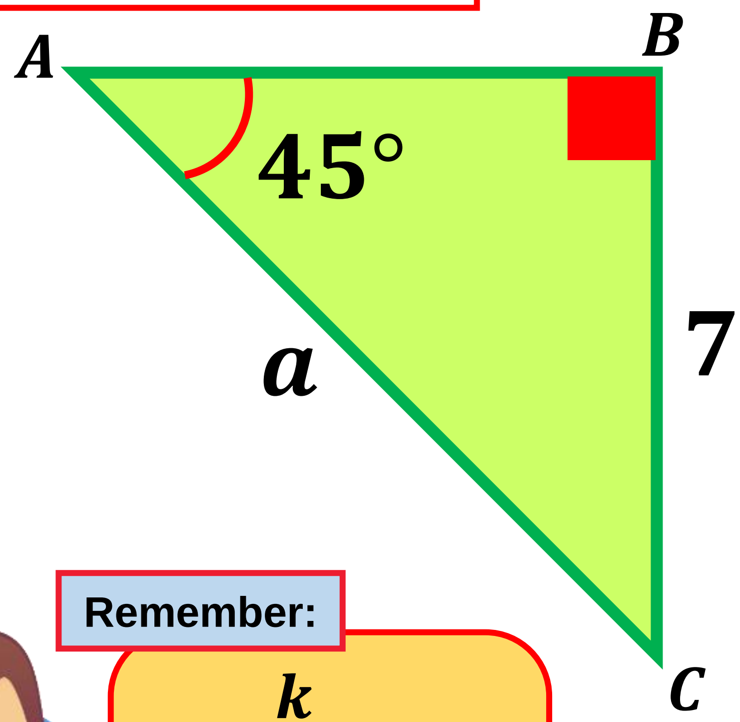
$$y^2 = 25 + \left[\left(\cancel{\sqrt{}}2\right)^{\cancel{2}}\right]^2$$

$$y^2 = 25 + 4$$

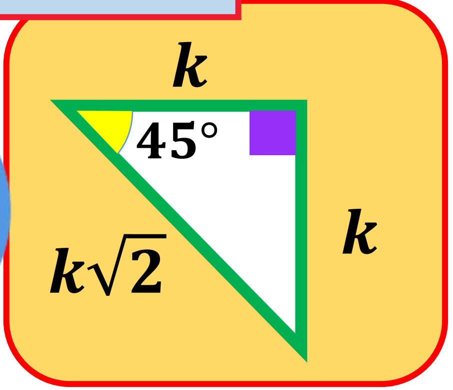
$$y^2 = 29 \Rightarrow \boxed{y = \sqrt{29}}$$

# HELICOPRACTICE 7

Del gráfico, calcule $a^2$




Remember:




Resolución:

En el $\Delta ABC$ (Notable de 45°)

Se observa:

BC= 7

Luego:

$\Rightarrow$ $a = 7\sqrt{2}$

¡Genial!

Calculamos:

$$a^2 = (7\sqrt{2})^2$$

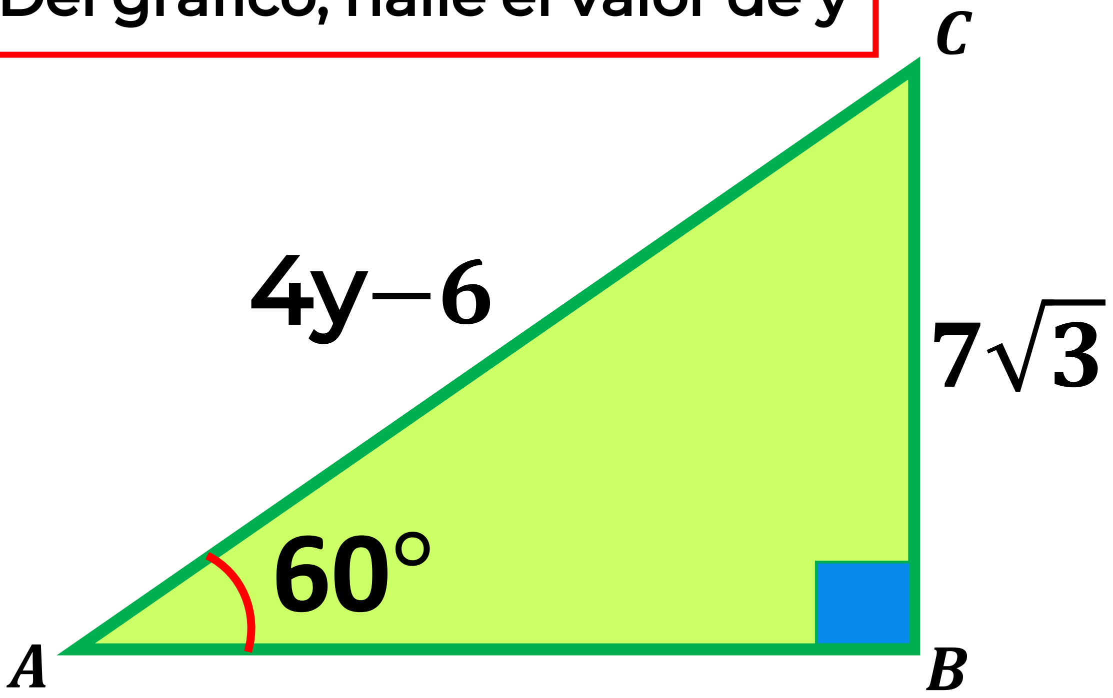
$$a^2 = (7)^2 \times (\cancel{\sqrt{2}})^{\cancel{2}}$$

$$a^2 = 49 \times 2$$

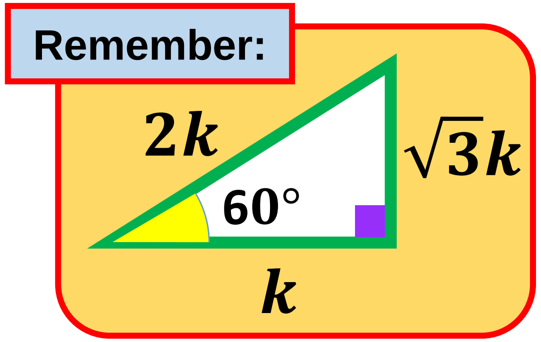
$$\therefore a^2 = 98$$

# HELICOPRACTICE 8

Del gráfico, halle el valor de y




Remember:




**Resolución:**

En el $\Delta ABC$ (Notable de 30° y 60°)

Se observa:

$k\sqrt{3} = 7\sqrt{3} \Rightarrow k = 7$

Luego:

$$4y - 6 = 2k$$

$$\Rightarrow 4y - 6 = 2(7)$$

$$4y - 6 = 14$$

$$4y = 20$$

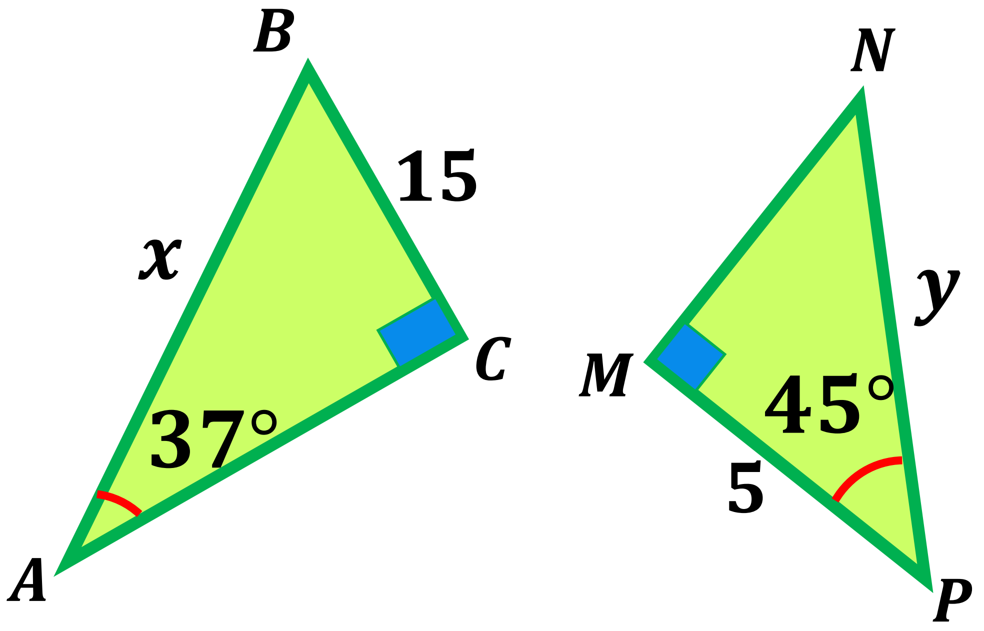
$$\boxed{\therefore y = 5}$$

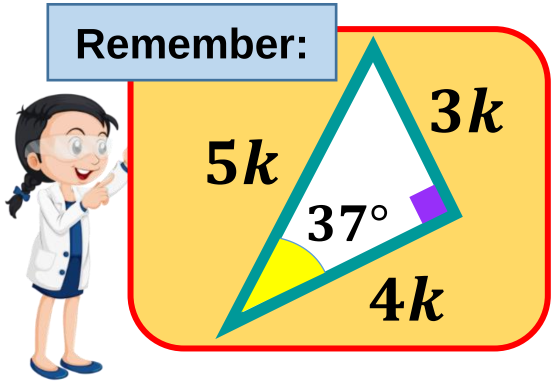
¡Excelente Campeón!

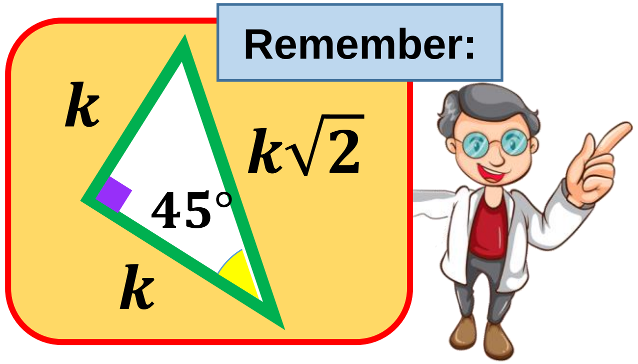
# HELICOPRACTICE 9



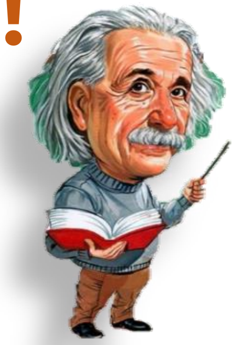
Dados los triángulos ABC y MNP, halle el valor de $E = x + y\sqrt{2}$




¡Genial!



**Resolución:**

(Notable de 37° y 53°)

Se observa:

$3k = 15 \rightarrow k = 5$

Luego:

$x = 5k = 5(5) \rightarrow \boxed{x = 25}$

En el $\Delta MNP$ (Notable de 45°)

Se observa: $k = 5$

Luego:

$y = k\sqrt{2} \rightarrow \boxed{y = 5\sqrt{2}}$

Calculamos: $E = x + y\sqrt{2}$

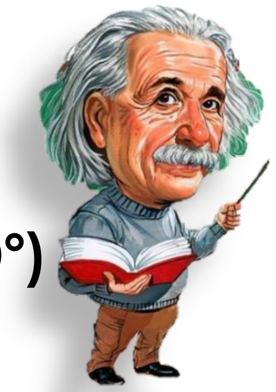
$E = 25 + (5\sqrt{2})\sqrt{2}$

$E = 25 + 10$

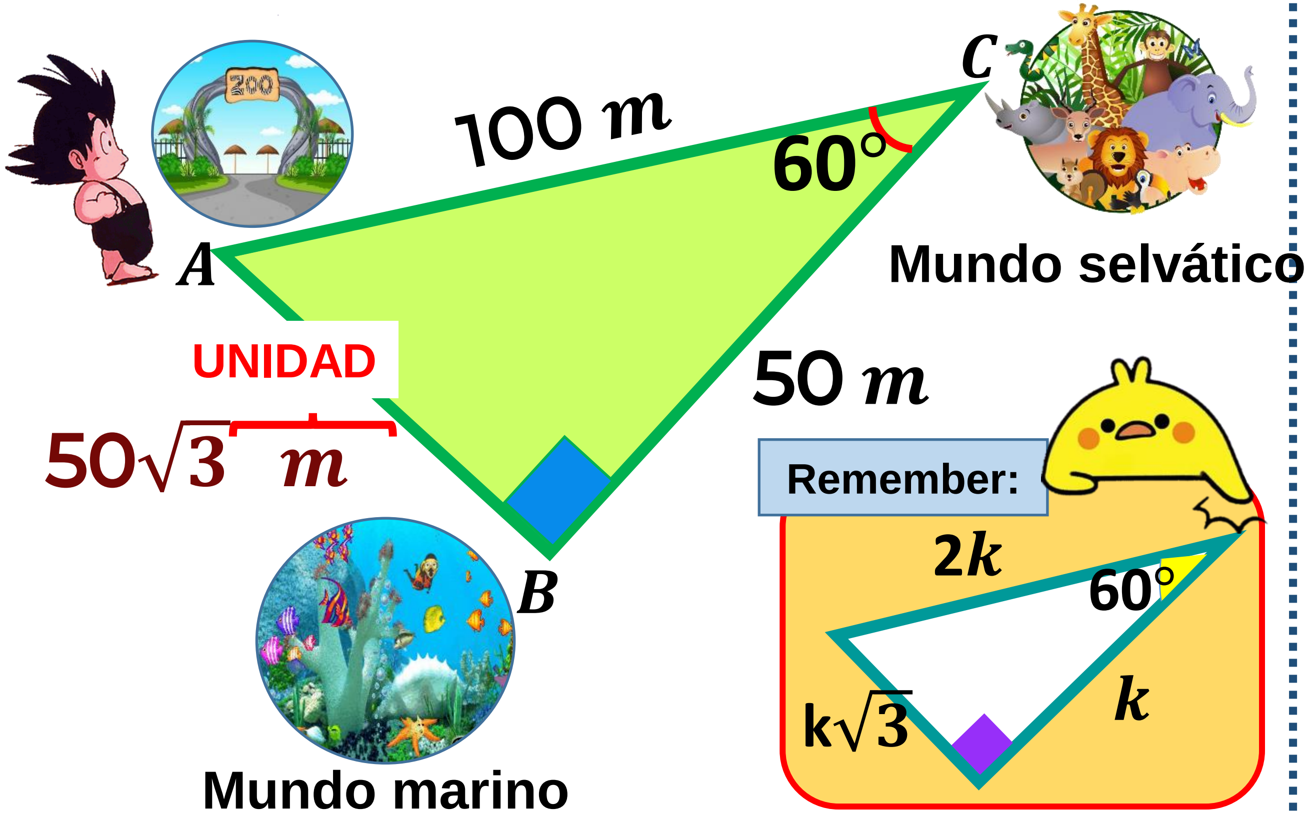
$\boxed{\therefore E = 35}$

# HELICOPRACTICE 10

¡Muy bien!



Un alumno ha ido de excursión al parque de las leyendas. En el mapa se puede observar su ubicación dentro del parque .
Si inicia su recorrido visitando el mundo selvático y termina en el mundo marino. ¿Cuántos metros recorre el alumno?




## Resolución:

En el $\Delta ABC$ (Notable de 30° y 60°)
Se observa:

$k\sqrt{3} = 50\sqrt{3}$ ➡ $K = 50\ m$

Luego:

$AC = 2k \ = 2(50)$

➡ $AC = 100\ m$

$BC = k$

➡ $BC = 50\ m$

¿Cuántos metros recorre el alumno?

$\therefore$ El alumno recorre 150 $m$