



# TRIGONOMETRY

ASESORÍA

**1st**  
SECONDARY

TOMO 3



 **SACO OLIVEROS**

# HELICOPRACTICE 1

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

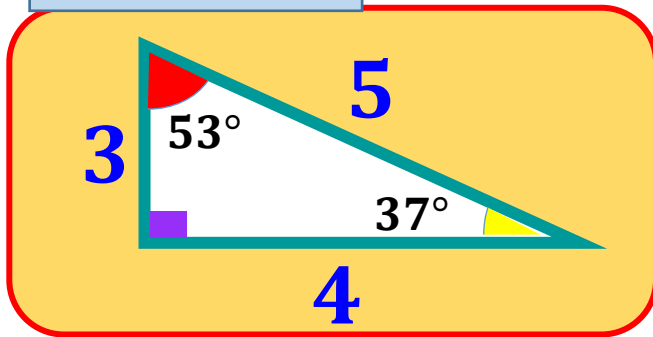
a.  $4 \cot 53^\circ = 5$  ( F )

b.  $50 \operatorname{sen} 37^\circ = 30$  ( V )

c.  $12 \sec 53^\circ = 27$  ( F )



Recordar:



Resolución:

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

b.  $50 \operatorname{sen} 37^\circ = \frac{10}{\cancel{50}} \times \left( \frac{3}{\cancel{5}} \right) = 30$

c.  $12 \sec 53^\circ = \frac{6}{\cancel{18}} \times \left( \frac{5}{\cancel{3}} \right) = 30$

$\therefore F; V; F$

iGenial!

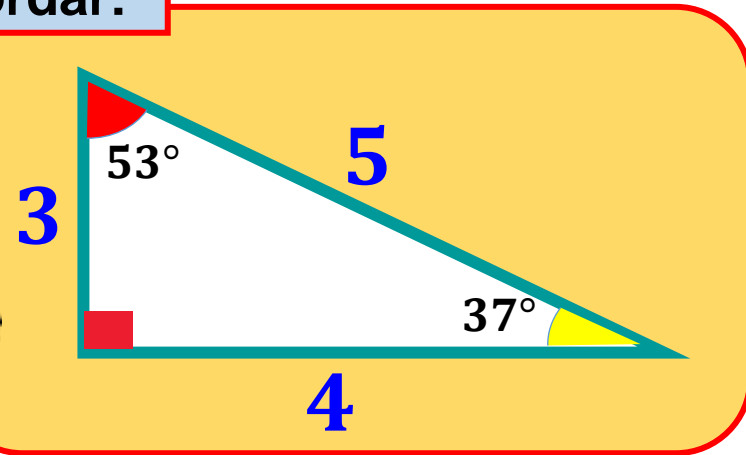


# HELICOPRACTICE 2

Efectúe:

$$E = \frac{\sec 53^\circ}{\cot 37^\circ} + \frac{\tan 37^\circ}{\csc 53^\circ}$$

Recordar:



Resolución:

$$E = \frac{\sec 53^\circ}{\cot 37^\circ} + \frac{\tan 37^\circ}{\csc 53^\circ}$$

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

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

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

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

¡Excelente!



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

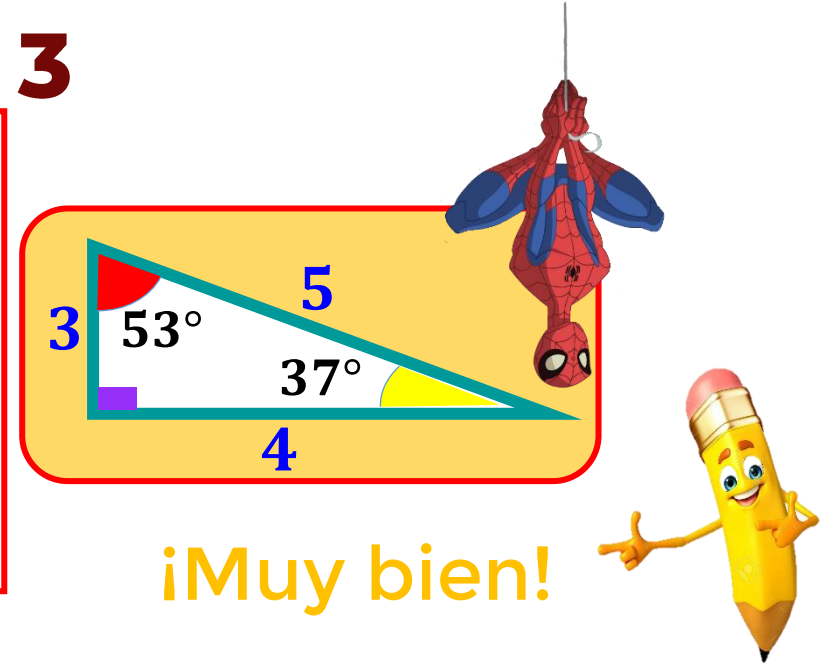
# HELICOPRACTICE 3

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

a.  $18 \cot 37^\circ$  ( $>$ )  $15 \sen 53^\circ$

b.  $45 \cos 37^\circ$  ( $<$ )  $36 \sec 53^\circ$

c.  $32 \cot 53^\circ$  ( $<$ )  $32 \sec 37^\circ$



¡Muy bien!

Resolución:

$$a. 18 \cot 37^\circ = \overset{6}{\cancel{18}} \times \left( \frac{4}{\cancel{3}} \right)_1$$

$$\Rightarrow 18 \cot 37^\circ = 24$$

$$15 \sen 53^\circ = \overset{3}{\cancel{15}} \times \left( \frac{4}{\cancel{5}} \right)_1$$

$$\Rightarrow 15 \sen 53^\circ = 12$$

$$b. 45 \cos 37^\circ = \overset{9}{\cancel{45}} \times \left( \frac{4}{\cancel{5}} \right)_1$$

$$\Rightarrow 45 \cos 37^\circ = 36$$

$$36 \sec 53^\circ = \overset{12}{\cancel{36}} \times \left( \frac{5}{\cancel{3}} \right)_1$$

$$\Rightarrow 36 \sec 53^\circ = 60$$

$$c. 32 \cot 53^\circ = \overset{8}{\cancel{32}} \times \left( \frac{3}{\cancel{4}} \right)_1$$

$$\Rightarrow 32 \cot 53^\circ = 24$$

$$32 \sec 37^\circ = \overset{8}{\cancel{32}} \times \left( \frac{5}{\cancel{4}} \right)_1$$

$$\Rightarrow 32 \sec 37^\circ = 40$$

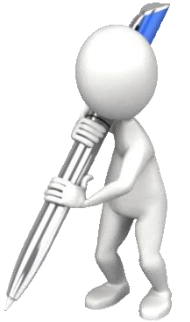
# HELICOPRACTICE 4

Calcule  $A+B$

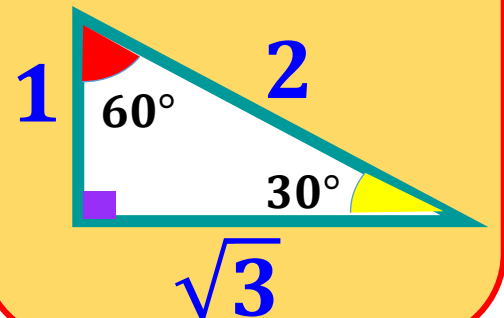
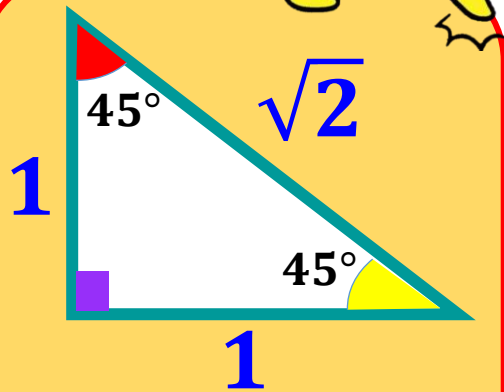
$$A = \sqrt{3} \cot 60^\circ + 2 \tan 45^\circ$$

$$B = 2\sqrt{2} \csc 45^\circ + \sec 60^\circ$$

¡Sigue así!



Recordar:



Resolución:

$$A = \sqrt{3} \cot 60^\circ + 2 \tan 45^\circ$$

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

$$A = 1 + 2$$

$$A = 3$$

$$B = 2\sqrt{2} \csc 45^\circ + \sec 60^\circ$$

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

$$B = 4 + 2$$

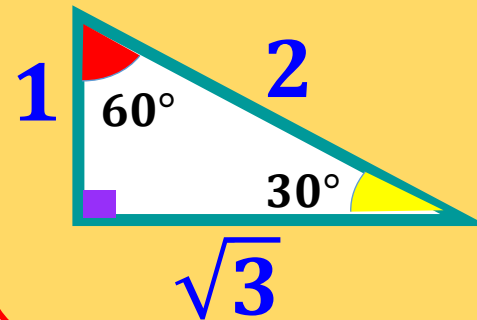
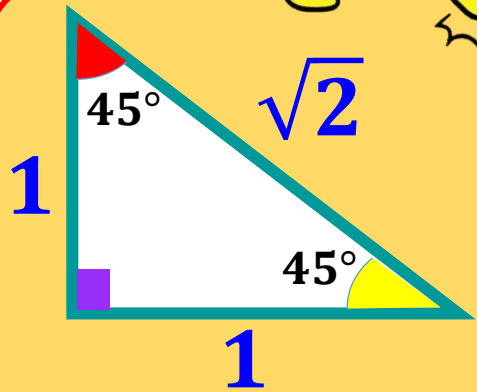
$$B = 6$$

$$\therefore A + B = 9$$

# HELICOPRACTICE 5

Efectúe:  $\frac{7y + \tan 45^\circ}{\csc 30^\circ} = \frac{y + \tan^2 60^\circ}{\sqrt{3} \tan 30^\circ}$

Recordar:



Resolución:

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

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

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

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

$$5y = 5$$

$$\therefore y = 1$$



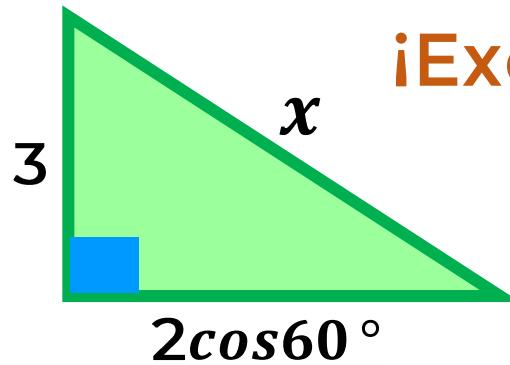
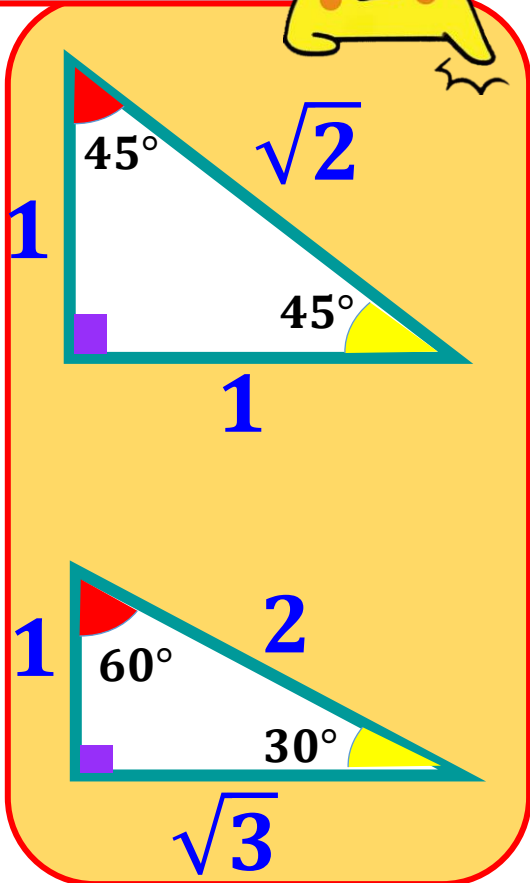
# HELICOPRACTICE 6

Por el teorema de Pitágoras:

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

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

Recordar:



¡Excelente!



Resolución:

$$x^2 = (3)^2 + (2 \cos 60^\circ)^2$$

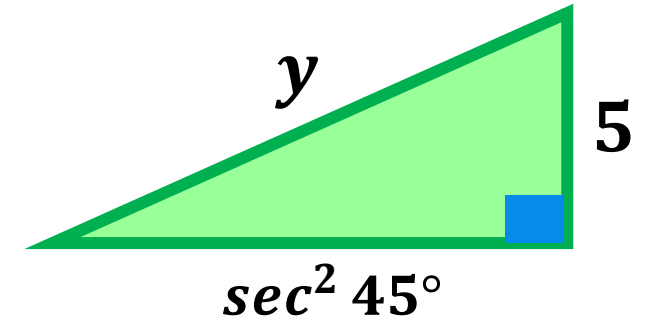
$$x^2 = 9 + \left[ \cancel{2} \left( \frac{\cancel{1}}{\cancel{2}} \right) \right]^2$$

$$x^2 = 9 + 1$$

$$x^2 = 10$$



$$x = \sqrt{10}$$



$$y^2 = (5)^2 + (\sec^2 45^\circ)^2$$

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

$$y^2 = 25 + 4$$

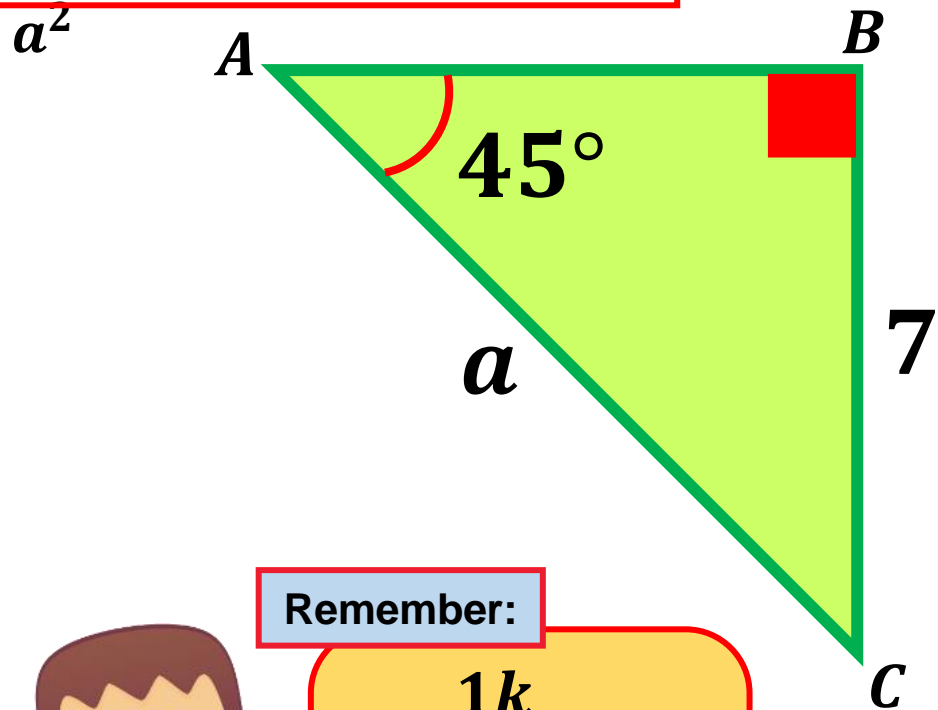
$$y^2 = 29$$



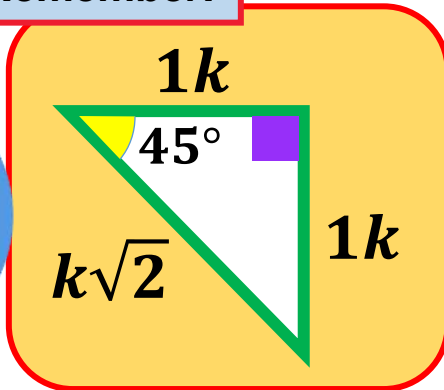
$$y = \sqrt{29}$$

# HELICOPRACTICE 7

Del gráfico, calcule



Remember:



Resolución:

En el  $\triangle ABC$  (Notable de  $45^\circ$ )

Se observa:

Luego:

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

Piden:

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

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

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

**¡Genial!**

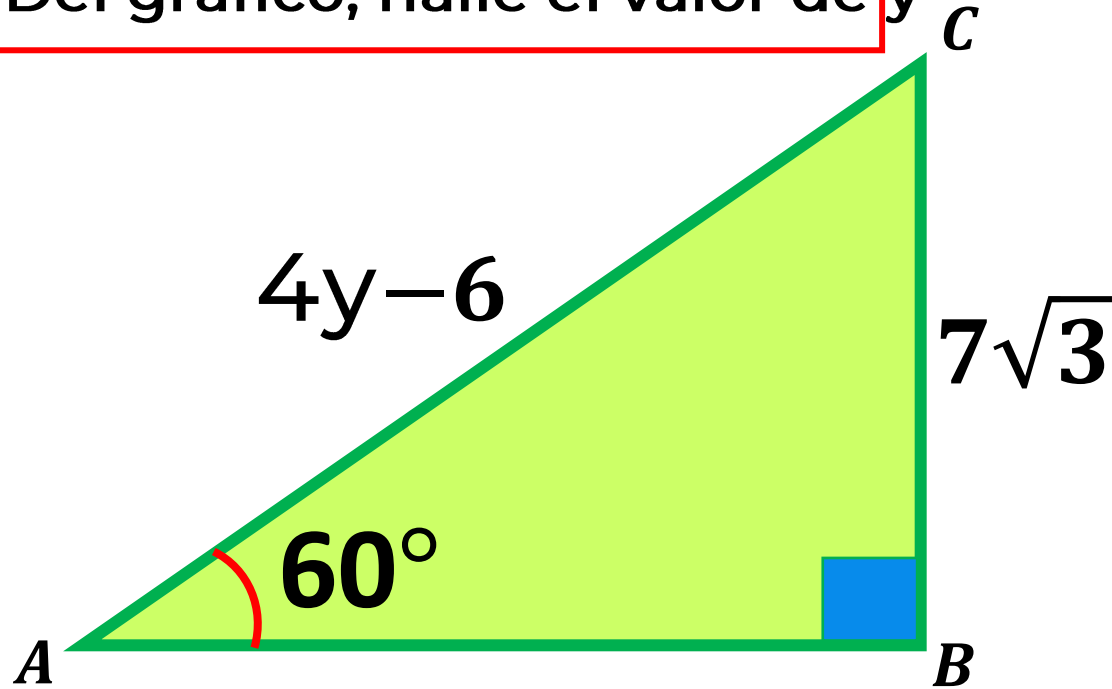


$$\therefore a^2 = 98$$

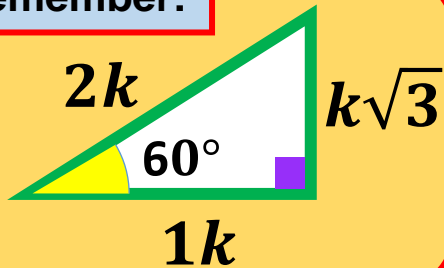


# HELICOPRACTICE 8

Del gráfico, halle el valor de  $y$



Remember:



Resolución:

En el  $\triangle ABC$  (Notable de  $30^\circ$  y  $60^\circ$ )  
Se observa:

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

Luego:

$$4y - 6 = 2k$$

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

$$4y - 6 = 14$$

$$4y = 20$$

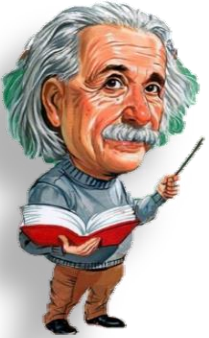
$$\therefore y = 5$$

¡Excelente  
Campeón!

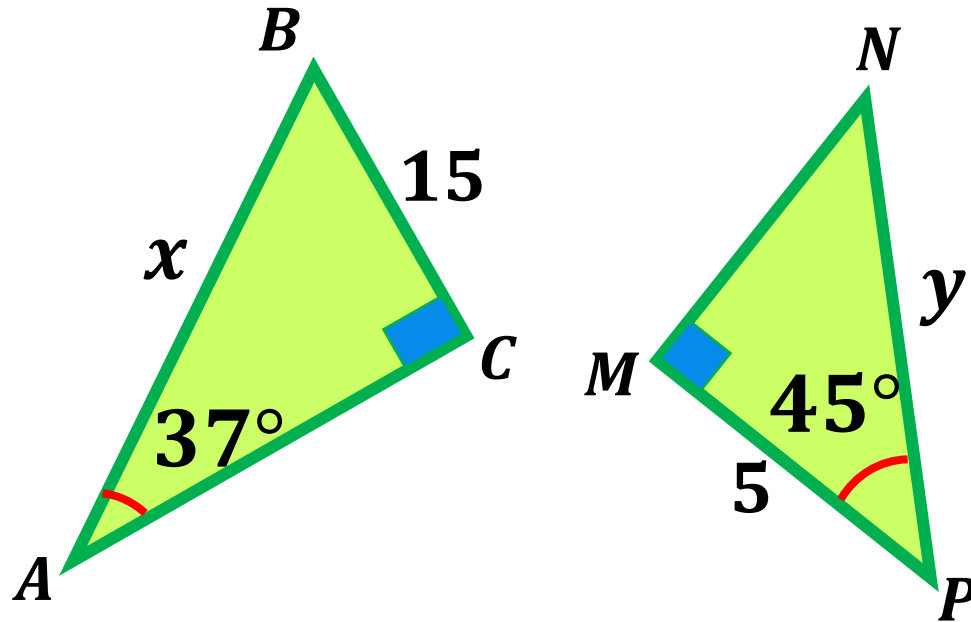


# HELICOPRACTICE 9

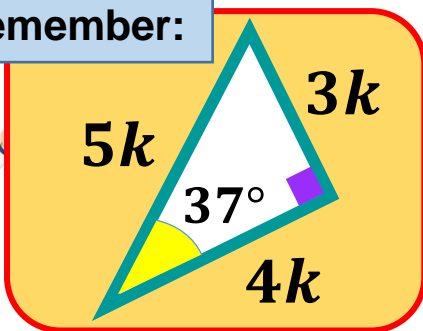
¡Genial!



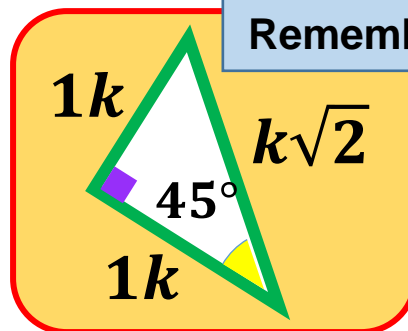
Dados los triángulos ABC y MNP, halle el valor de  $x + y\sqrt{2}$



Remember:



Remember:



Resolución:

(Notable de  $37^\circ$  y  $56^\circ$ )

Se observa:  $k = 5$

Luego

$$x = 5k = 5(5) \Rightarrow x = 25$$

En el  $\triangle MNP$  (Notable de  $45^\circ$ )

Se observa:  $k = 5$

Luego:

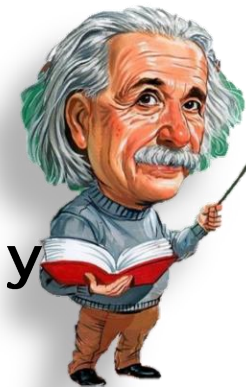
$$y = k\sqrt{2} \Rightarrow y = 5\sqrt{2}$$

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

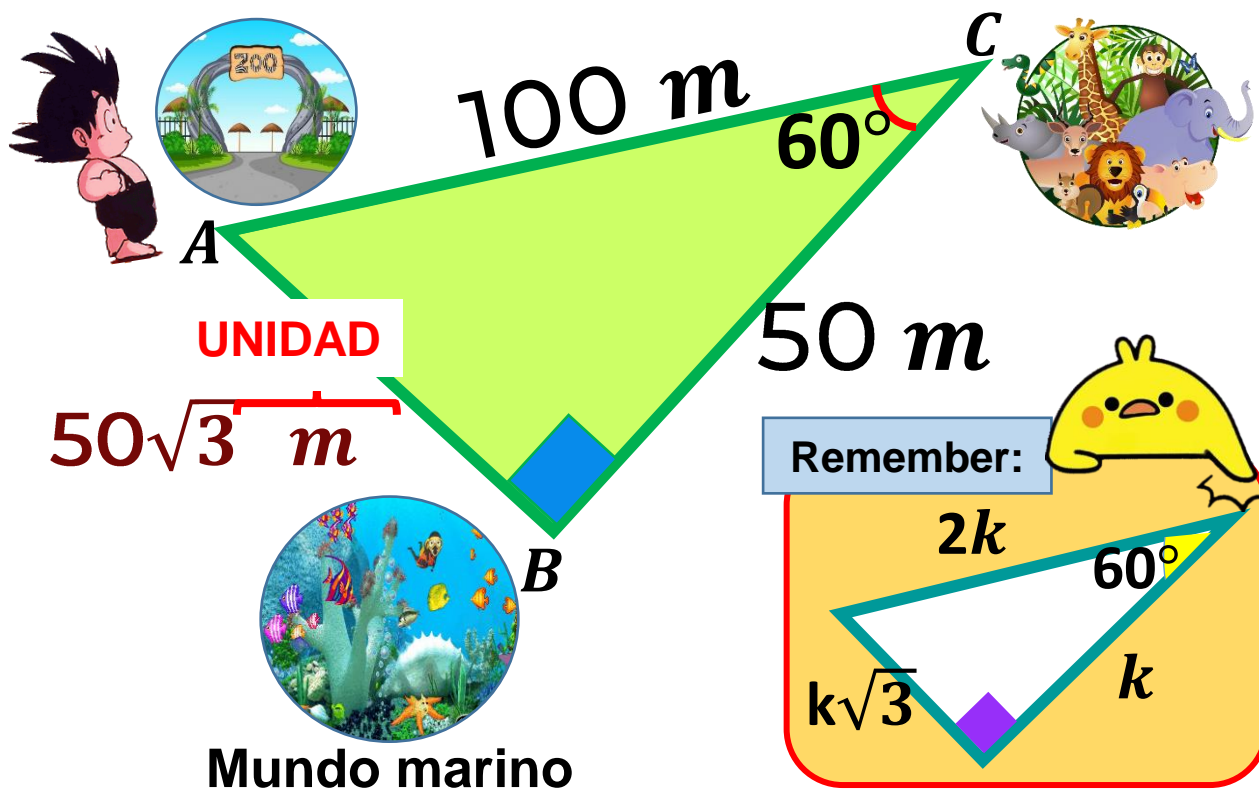
$$E = 25 + (5\sqrt{2})\sqrt{2}$$

$$E = 25 + 10$$

$$\therefore E = 35$$



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  $\triangle ABC$  (Notable de  $30^\circ$  y  $60^\circ$ )  
Se observa:

$$k\sqrt{3} = 50\sqrt{3} \Rightarrow K = 50\text{ m}$$

Luego:

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

$$\Rightarrow AC = 100\text{ m}$$

$$BC = k$$

$$\Rightarrow BC = 50\text{ m}$$

Piden:

¿Cuántos metros recorre el alumno?

$\therefore$  El alumno recorre  $150\text{ m}$