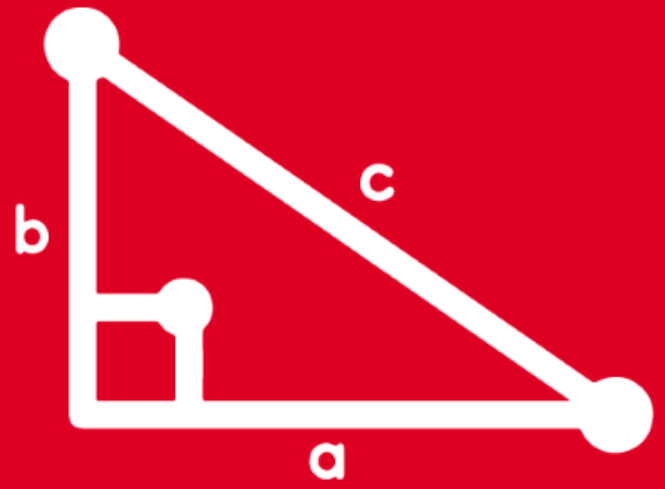
TRIGONOMETRY

VOLUME III

1st
SECONDARY



FEEDBACK

SACO OLIVEROS

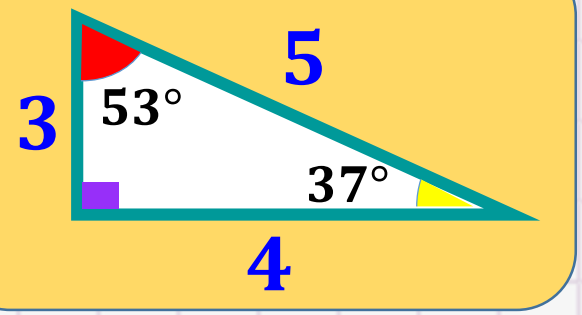
1) Escriba verdadero (V) o falso (F) según corresponda.

a. $5\ \text{sen}37° = 3$ (V)

b. $8\ \sec 37° = 25$ (F)

c. $18\ \tan 53° = 24$ (V)

Recordar



RESOLUCIÓN

a. $5\ \text{sen}37° = \cancel{5}\left(\frac{3}{\cancel{5}}\right) = 3$

b. $8\ \sec 37° = \overset{2}{\cancel{8}}\left(\frac{5}{\cancel{4}}\right) = 10$ (1)

c. $18\ \tan 53° = \overset{6}{\cancel{18}}\left(\frac{4}{\cancel{3}}\right) = 24$ (1)

$\therefore$ **V; F; V**

2) Calcule el valor de y si $y - tan\,53° = \csc 37° + \cot 37°$.

RESOLUCIÓN

$\rightarrow y - tan\,53° = \csc 37° + \cot 37°$

$$y - \frac{4}{3} = \frac{5}{3} + \frac{4}{3}$$

$$y - \frac{4}{3} = \frac{9}{3}$$

$$y = \frac{9}{3} + \frac{4}{3}$$

$\therefore$ $\boxed{y = \frac{13}{3}}$

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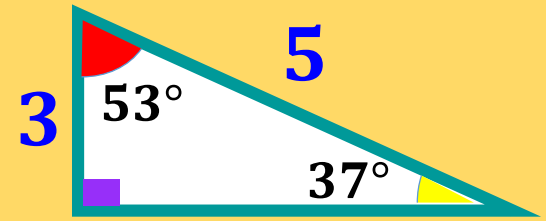
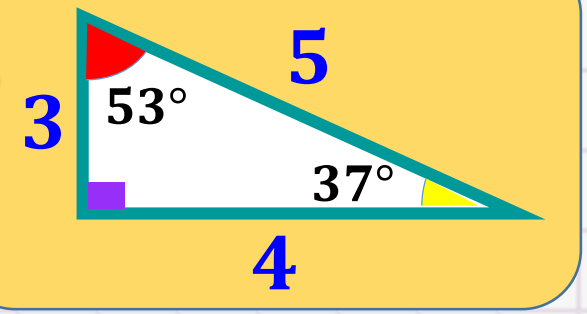


3) Efectúe

$$P = \frac{\cos 53° + \cot 37°}{\tan 53° - \operatorname{sen} 53°}$$

Recordar



RESOLUCIÓN

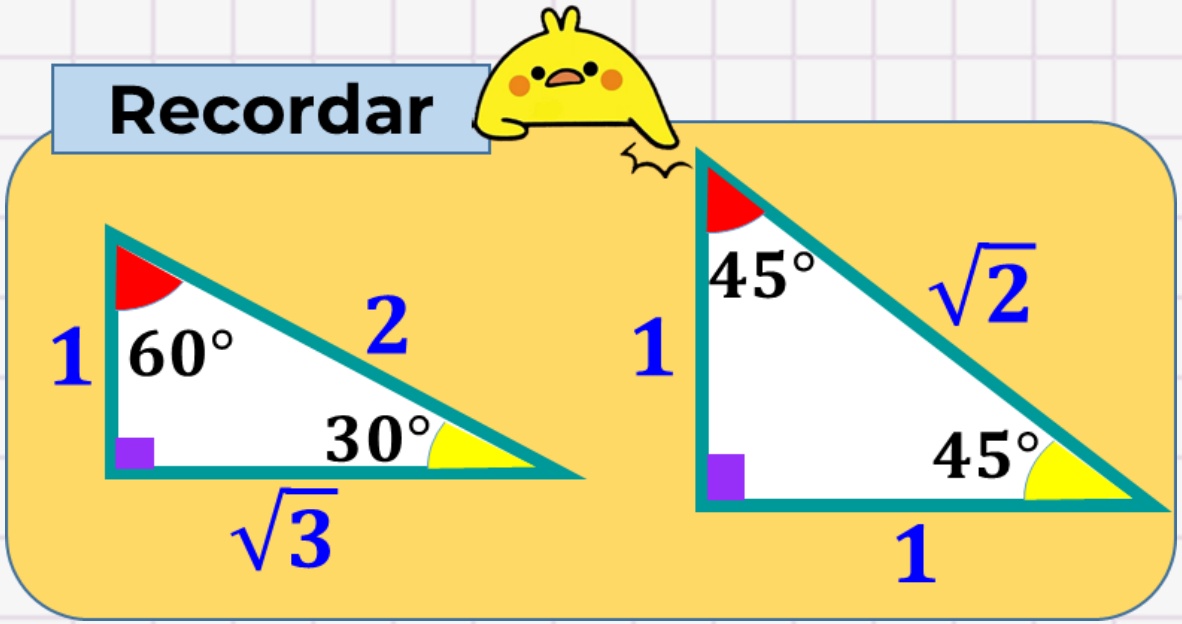
$$P = \frac{\frac{3}{5} + \frac{4}{3}}{\frac{4}{3} - \frac{4}{5}} = \frac{\frac{9+20}{15}}{\frac{20-12}{15}} = \frac{\frac{29}{15}}{\frac{8}{15}}$$

$$= \frac{29 \times \cancel{15}}{\cancel{15} \times 8}$$

$$\therefore \boxed{P = \frac{29}{8}}$$

4) Calcule

$$M = \frac{16\cot 45° + 8\cos 60°}{\sec^2 45°}$$



RESOLUCIÓN

$$M = \frac{16(1) + 8\left(\frac{1}{2}\right)}{(\sqrt{2})^2}$$

$$M = \frac{16 + 4}{2} = \frac{20}{2}$$

$$\therefore \boxed{M = 10}$$

5) Determine el valor de x si

$$x \cdot cot^2\,30° - 4\,sec\,60° = 7\,cot\,45°$$

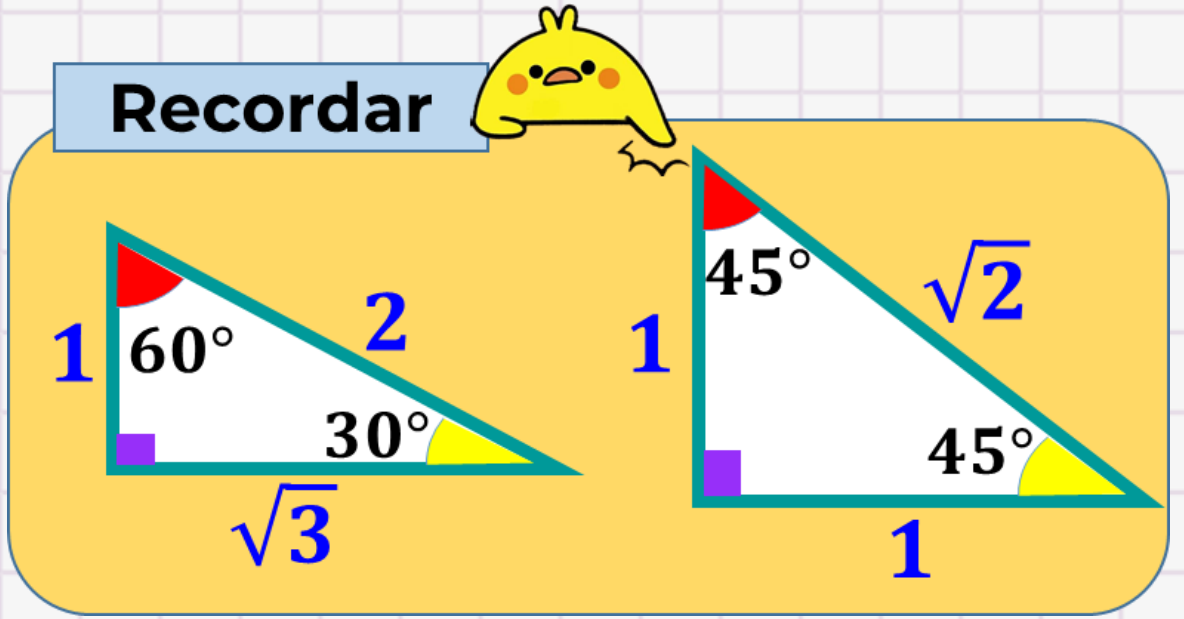
RESOLUCIÓN

$$\rightarrow x \cdot (\sqrt{3})^2 - 4(2) = 7(1)$$

$$3x - 8 = 7$$

$$3x = 15$$

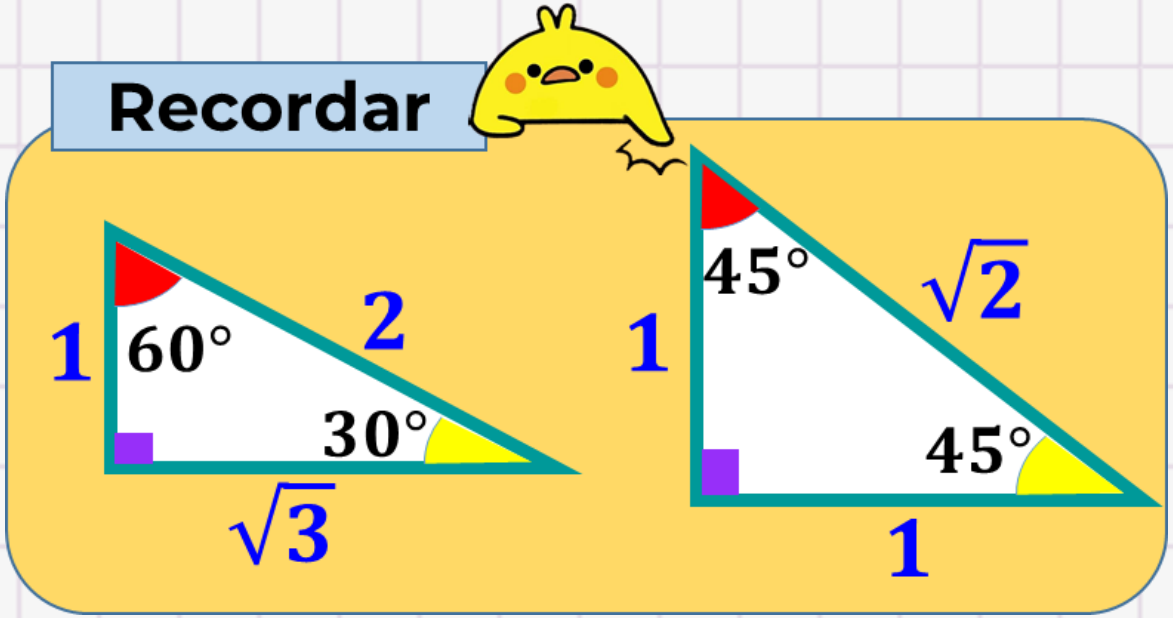
$$\therefore \boxed{x = 5}$$



6) Calcule $A \cdot B$, si

$$A = 3\sec^2 30° + 2\operatorname{sen}^2 45°$$

$$B = \tan^2 60° + \csc^2 30°$$



RESOLUCIÓN

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

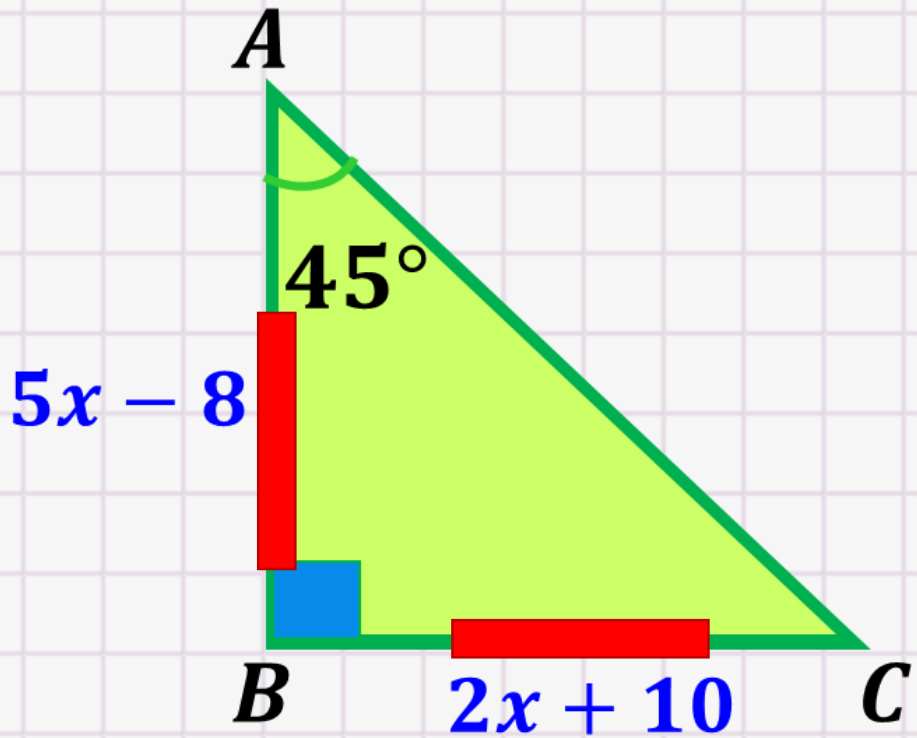
$$A = 3\left(\frac{4}{3}\right) + 2\left(\frac{1}{2}\right) = 5$$

$$\rightarrow B = \sqrt{3}^2 + 2^2$$

$$B = 3 + 4 = 7$$

$$\rightarrow A \cdot B = 5 \cdot 7 \quad \therefore \quad A \cdot B = 35$$

7) Del gráfico, calcule el valor de x.



RESOLUCIÓN

El ΔABC es notable de $45° - 45°$.

$$\rightarrow \mathbf{AB = BC}$$

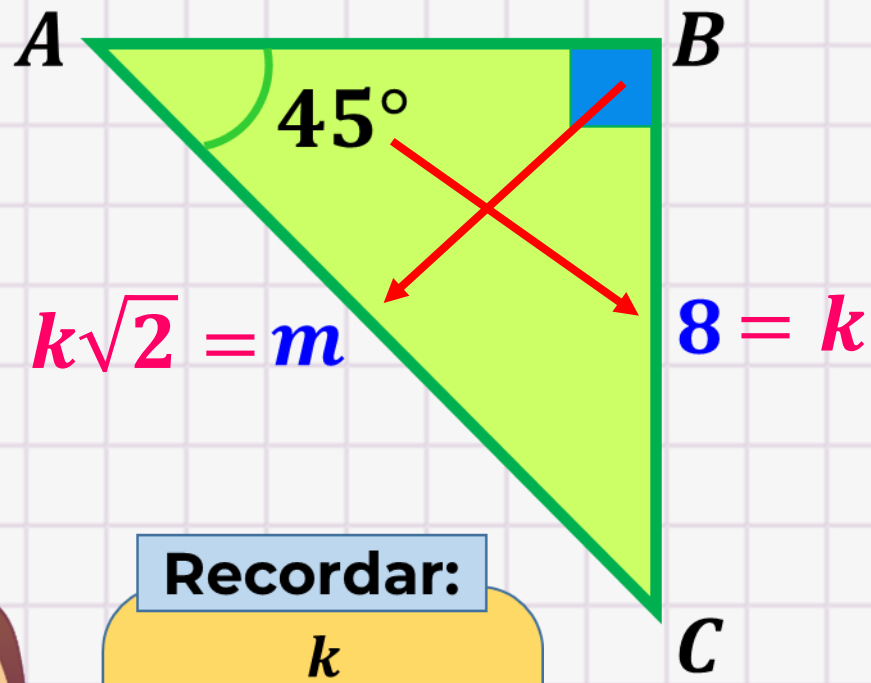
$$5x - 8 = 2x + 10$$

$$5x - 2x = 10 + 8$$

$$3x = 18$$

$$\therefore \boxed{x = 6}$$

8) Del gráfico, calcule m^2.



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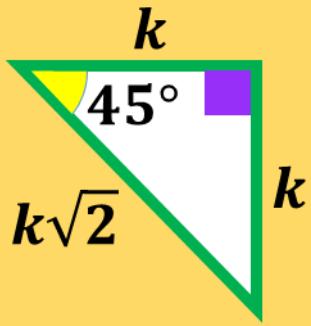


RESOLUCIÓN

El ΔABC es notable de $45° - 45°$.

Se observa: $\boxed{k = 8}$

Luego: $m = k\sqrt{2} \Rightarrow m = 8\sqrt{2}$

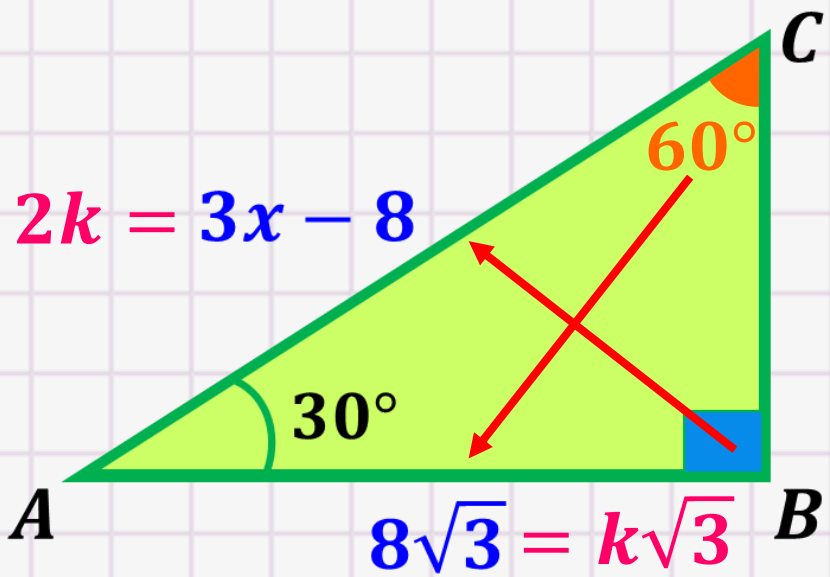
Calculamos: $m^2 = (8\sqrt{2})^2$

$m^2 = 8^2 \times (\sqrt{2})^2$

$m^2 = 64 \times 2$

$\therefore \boxed{m^2 = 128}$

9) **Del gráfico, calcule el valor de x.**



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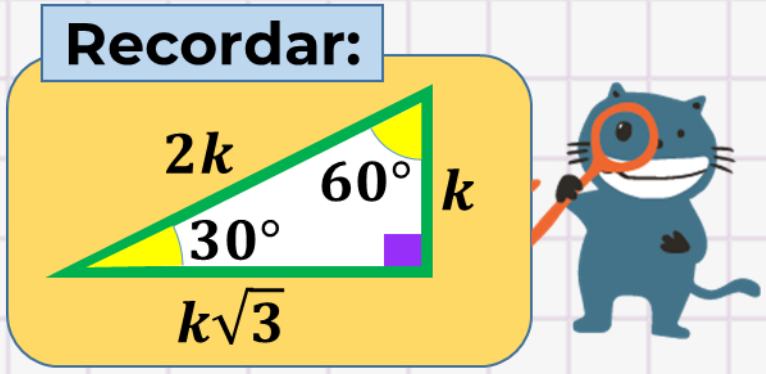


RESOLUCIÓN

El ΔABC es notable de $30° - 60°$.

Se observa: $k\sqrt{3} = 8\sqrt{3} \Rightarrow \boxed{k = 8}$

Luego: $3x - 8 = 2k$

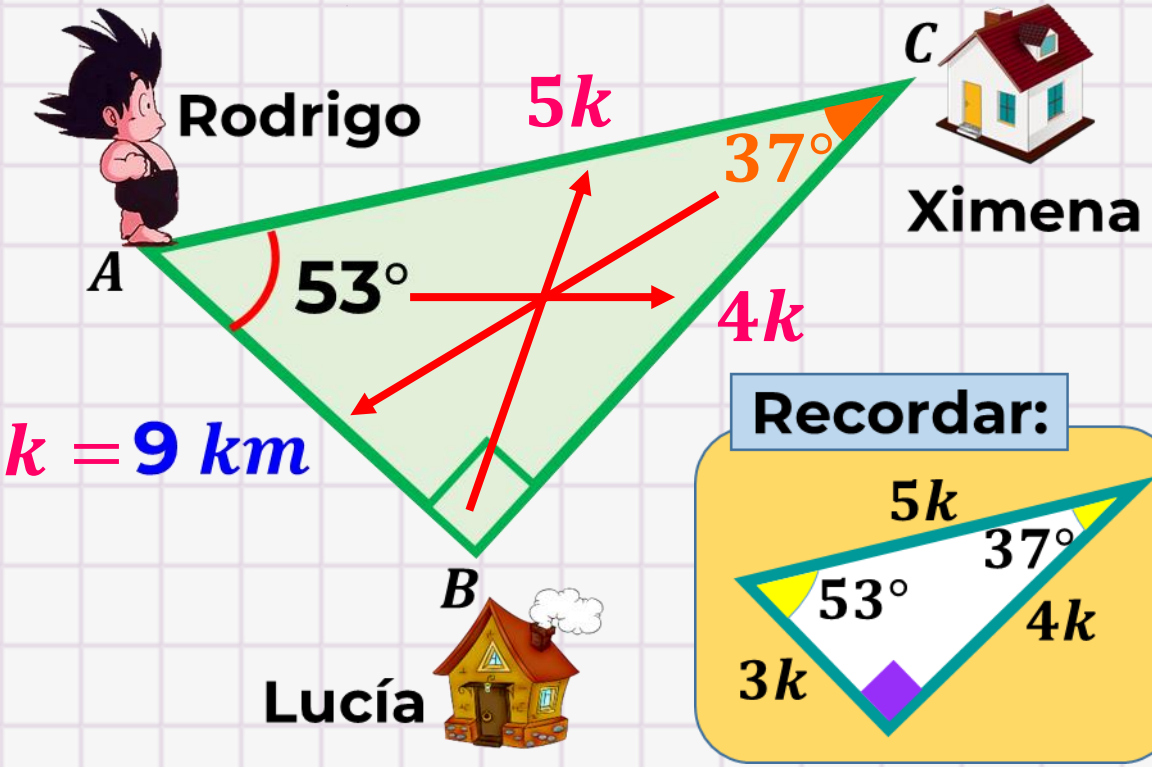
$\Rightarrow 3x - 8 = 2(\mathbf{8})$

$3x - 8 = 16$

$3x = 24$

$\therefore \boxed{x = 8}$

10) **La imagen muestra la ruta que debe tomar Rodrigo para visitar a sus compañeras Ximena y Lucía. Si inicia su recorrido visitando a Ximena y termina en casa de Lucía ¿Cuántos kilómetros recorre Rodrigo en total?**



RESOLUCIÓN

El ΔABC es notable de $37° - 53°$.

Se observa: $3k = 9$ ➡ $\boxed{k = 3}$

Luego:

$AC = 5k$

$AC = 5(3)$

$\boxed{AC = 15\ km}$

$BC = 4k$

$BC = 4(3)$

$\boxed{BC = 12\ km}$

$\rightarrow$Recorrido $= 15km + 12km$ $= 27km$


SACO
OLIVEROS