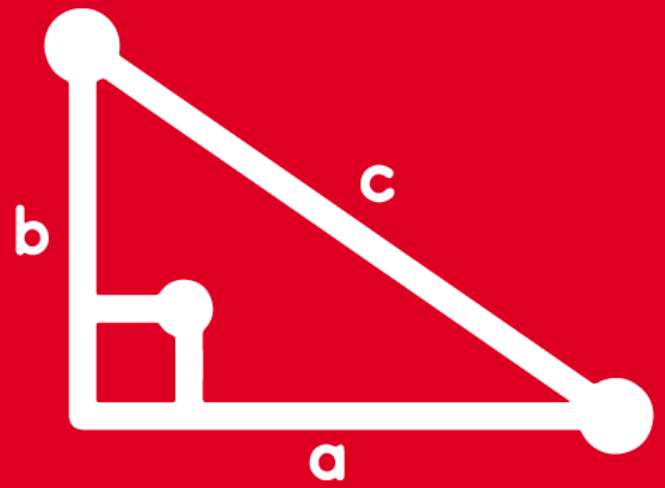
TRIGONOMETRY

Chapter 7



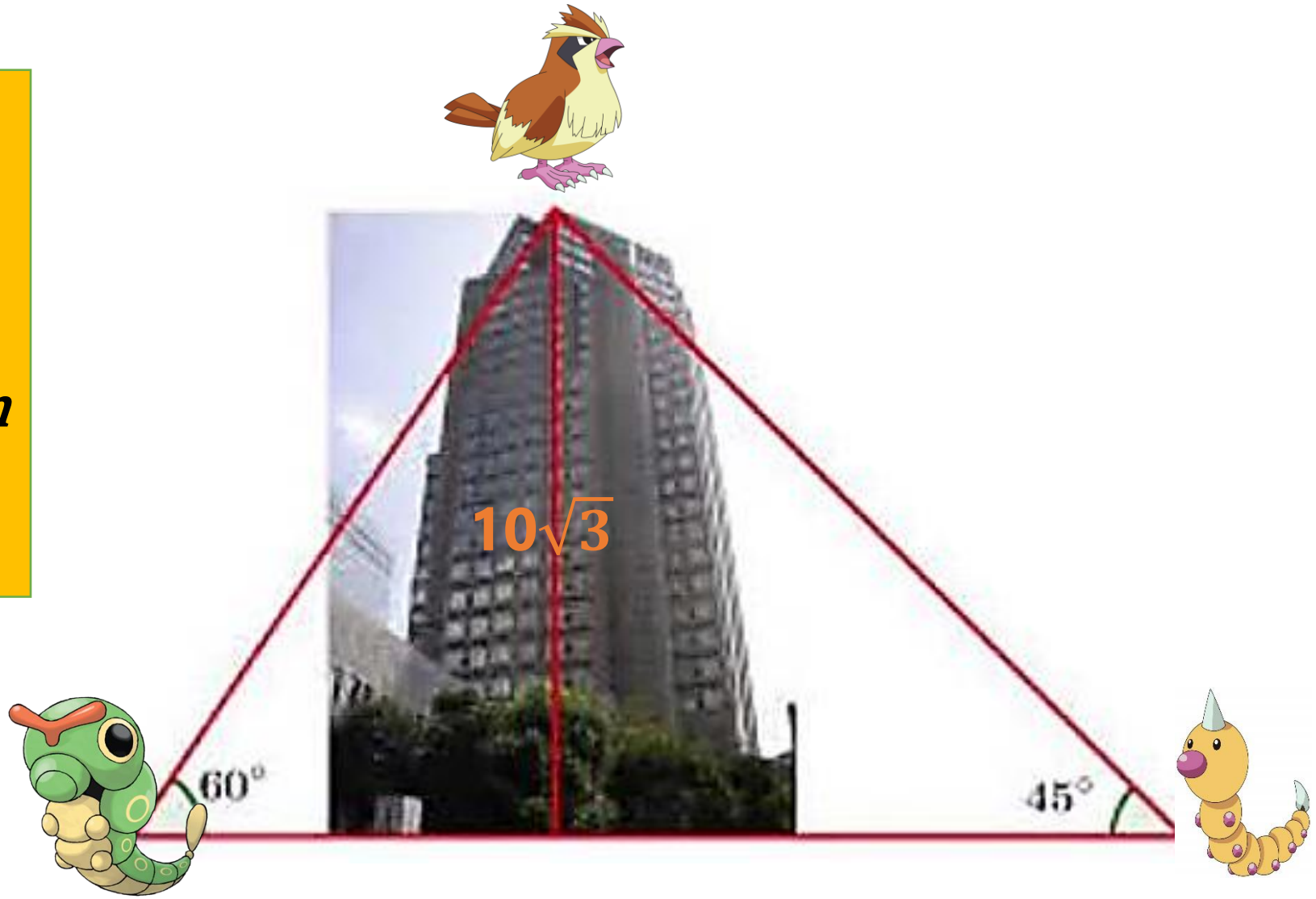
3th
SECONDARY

Razones trigonométricas de ángulos notables II

SACO OLIVEROS

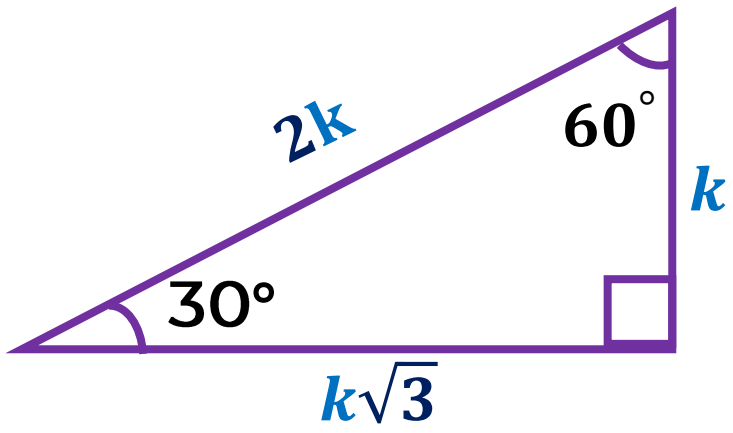
HELICO-MOTIVACIÓN

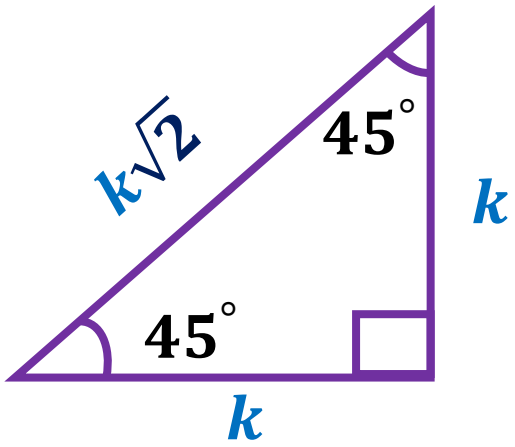
Conociendo la altura del edificio y los ángulos agudos de dichos triángulos notables, ¿se podrá determinar a quién atacara primero el pokemon pitgeod ?



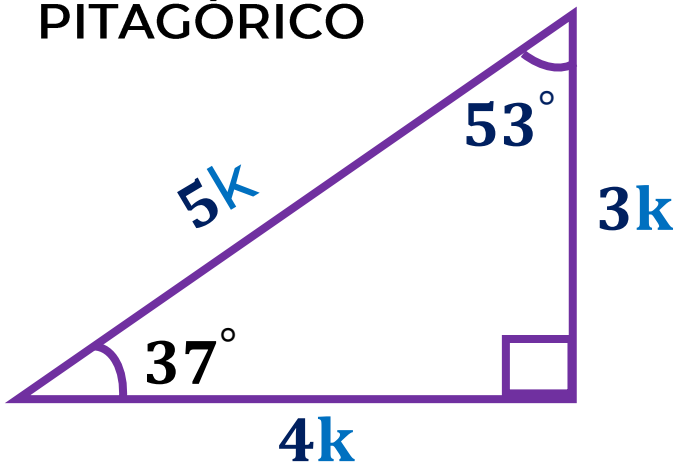
¿ CÓMO CALCULAMOS LAS LONGITUDES DE LOS LADOS EN LOS TRIÁNGULOS RECTÁNGULOS NOTABLES ?

Las calculamos utilizando una constante positiva K para conservar las proporcionalidades fijas y muy conocidas entre las longitudes de sus respectivos lados.





TRIÁNGULO APROXIMADO - PITAGÓRICO



Luego aplicamos las definiciones de las Razones Trigonométricas del ángulo agudo.

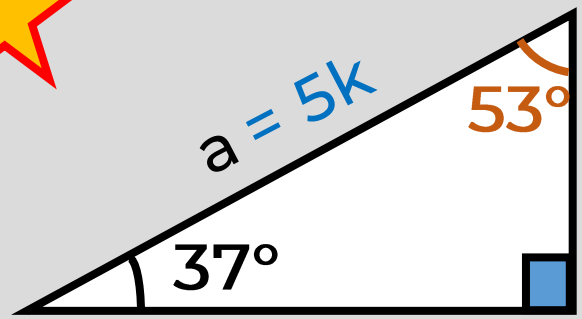
$$\frac{a}{\sqrt{b}} = \frac{a\sqrt{b}}{b}$$

α \ RT	sen	cos	tan	cot	sec	csc
30°	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$	$\sqrt{3}$	$\frac{2\sqrt{3}}{3}$	2
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$	$\frac{\sqrt{3}}{3}$	2	$\frac{2\sqrt{3}}{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1	1	$\sqrt{2}$	$\sqrt{2}$
37°	$\frac{3}{5}$	$\frac{4}{5}$	$\frac{3}{4}$	$\frac{4}{3}$	$\frac{5}{4}$	$\frac{5}{3}$
53°	$\frac{4}{5}$	$\frac{3}{5}$	$\frac{4}{3}$	$\frac{3}{4}$	$\frac{5}{3}$	$\frac{5}{4}$

HELICO-PRACTICA 1

Josué ha rendido sus exámenes de Trigonometría, Geometría y Razonamiento Matemático y ha obtenido las notas a, b y c, respectivamente. ¿En cuál de los cursos obtuvo más nota?

TRIGONOMETRIA

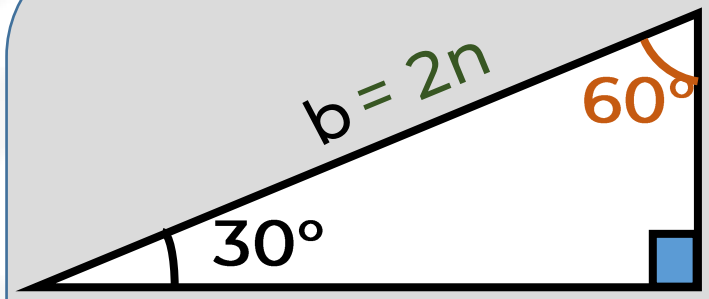


$16 = 4k$

$4 = k$

$\therefore a = 5(4) = 20$

GEOMETRIA

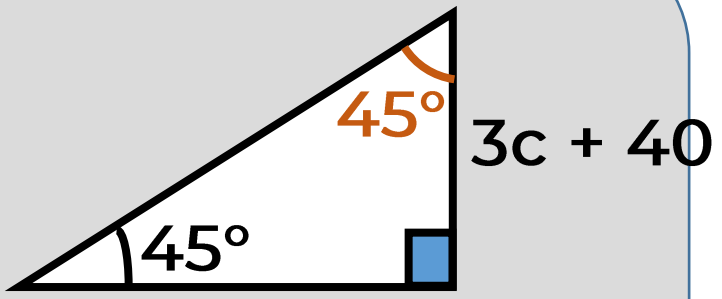


$8\sqrt{3} = n\sqrt{3}$

$8 = n$

$\therefore b = 2(8) = 16$

R. MATEMATICO



$7c - 12$

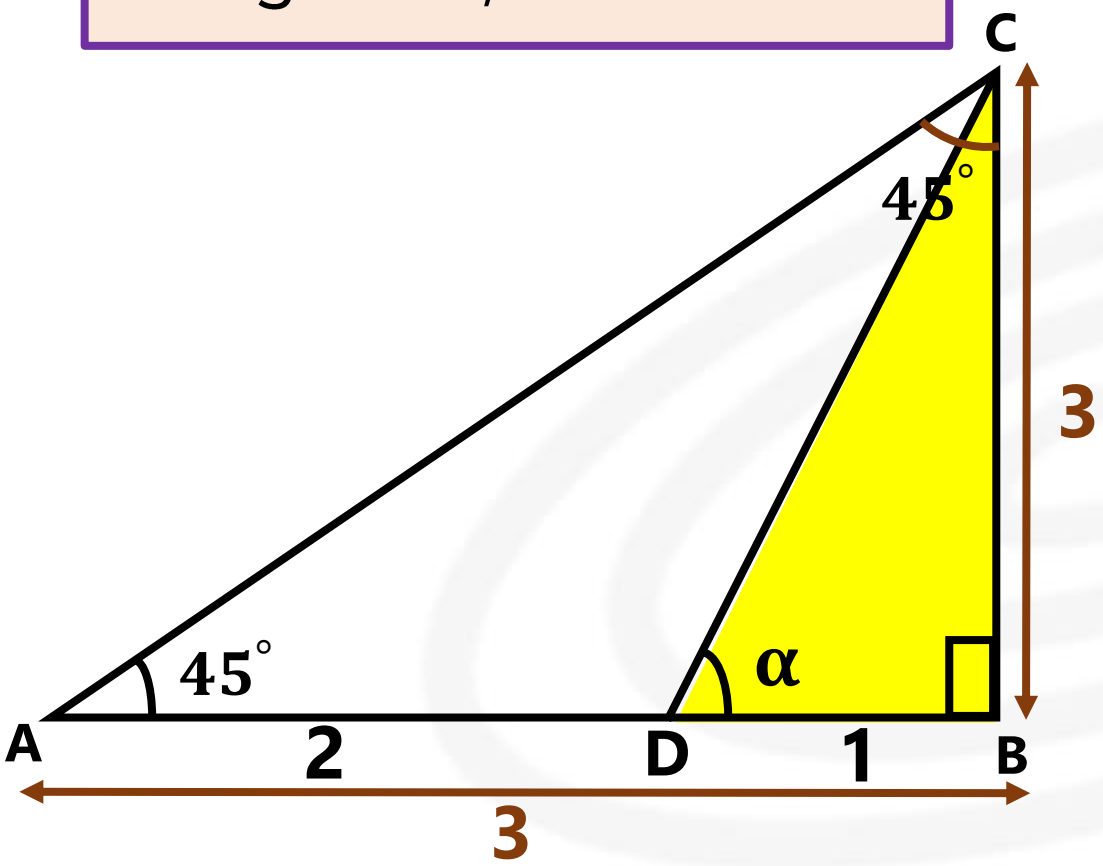
$7c - 12 = 3c + 40$

$\therefore c = 13$

$\therefore$ *En Trigonometría obtuvo la nota mayor.*

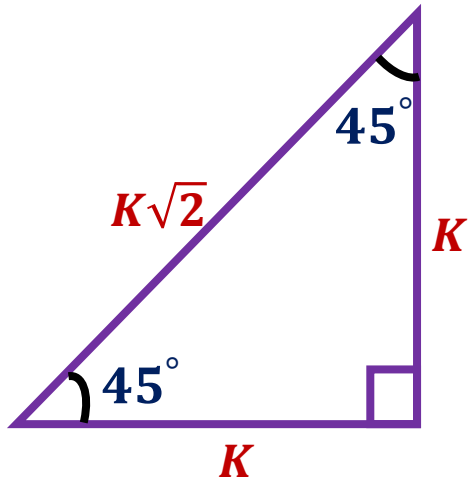
HELICO-PRACTICA 2

Del gráfico, calcule tanα



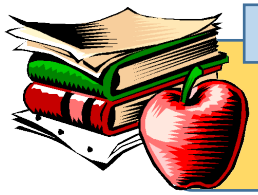
Resolución

❖ *Se observa el $\triangle ABC$ es notable*



AB = BC

$\therefore \tan\alpha = \frac{3}{1} = 3$

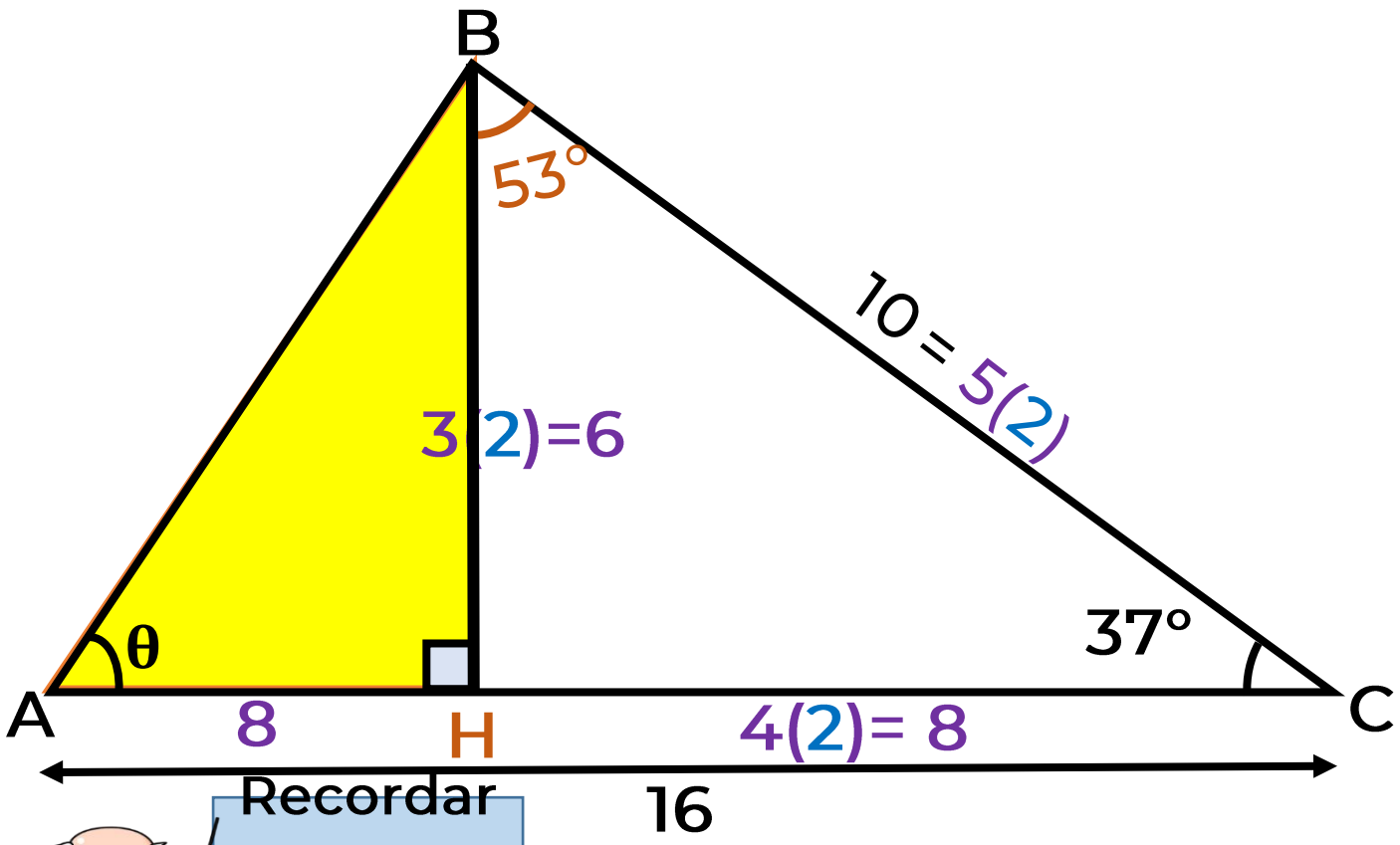


Recordar:

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

HELICO-PRACTICE 3

Calcule $\tan\theta$, del gráfico.

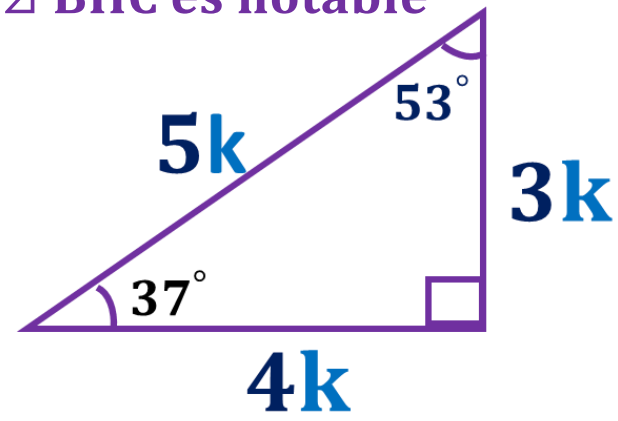


Recordar:

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

RESOLUCIÓN

- Trazamos $\overline{BH} \perp \overline{AC}$
- Se observa el
  $\triangle BHC$ es notable

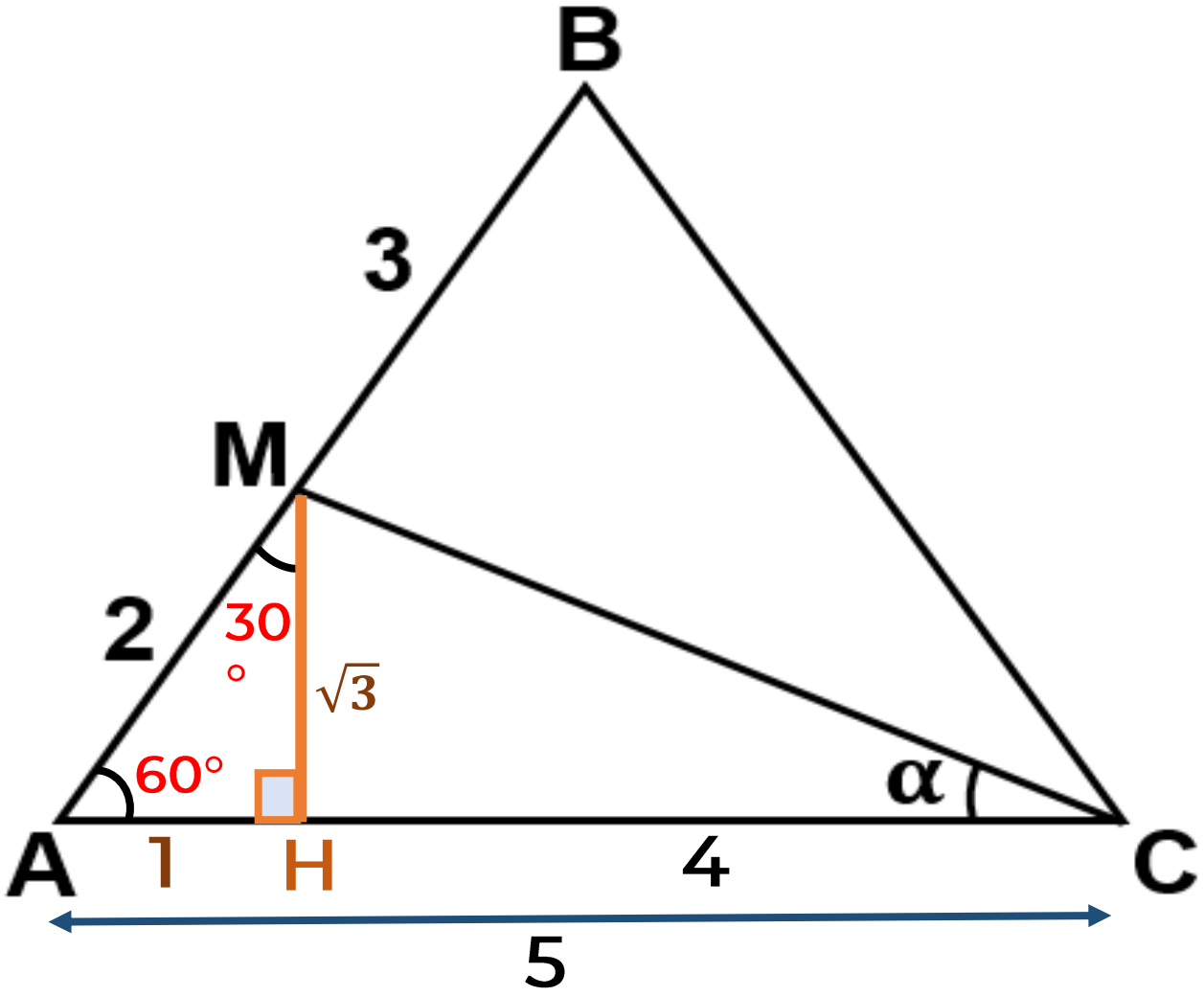


PIDEN

$$\tan\theta = \frac{\cancel{6}}{\cancel{8}} = \frac{3}{4}$$

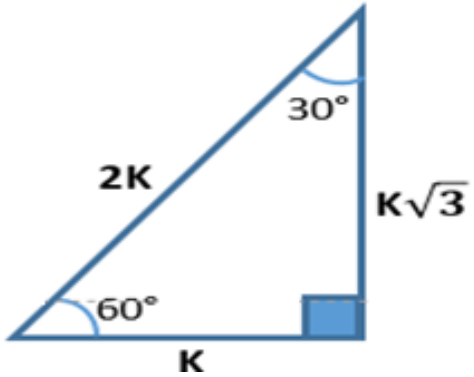
HELICO-PRACTICE 4

Del gráfico, calcule cotα si el triángulo ABC es equilátero.



Resolución

- Trazamos $\overline{MH} \perp \overline{AC}$
- Se observa $\triangle AHM$ es notable

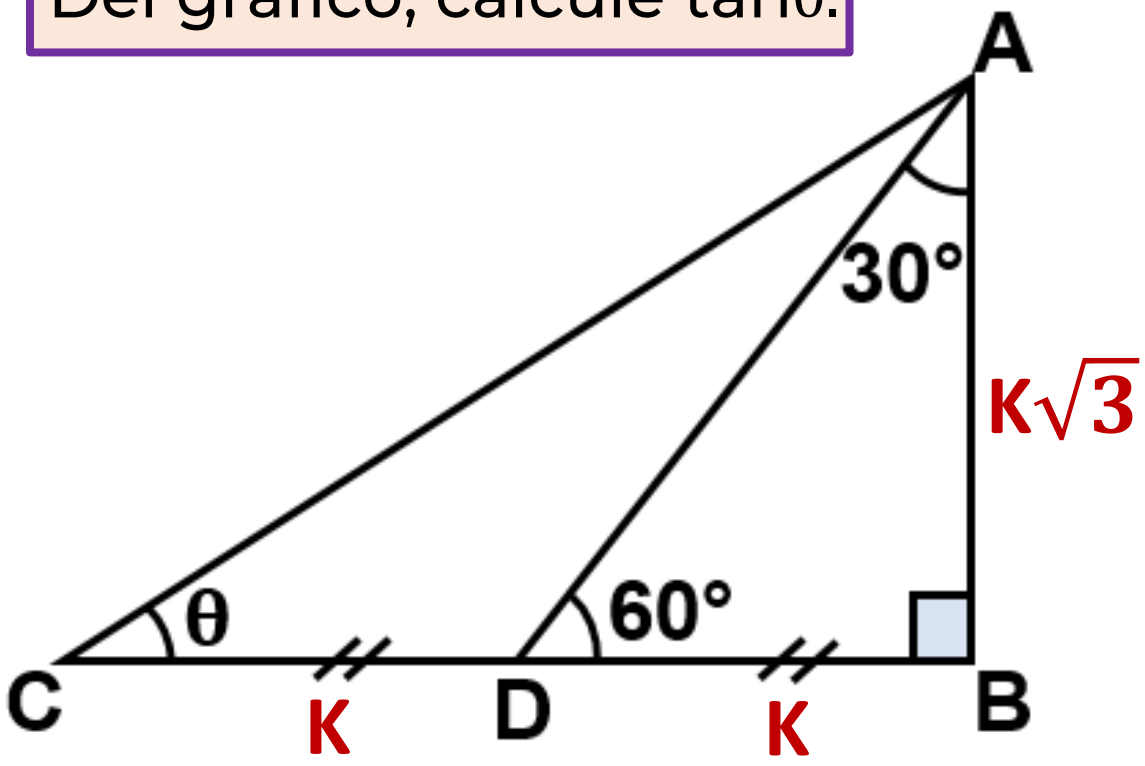


PIDEN

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

HELICO-PRACTICE 5

Del gráfico, calcule tanθ.

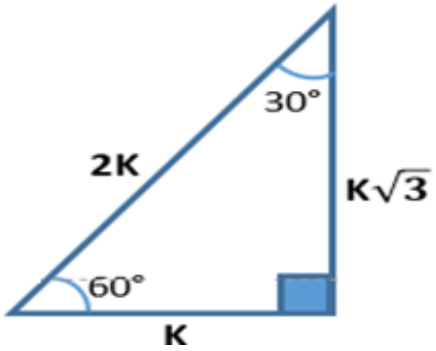


Recordar:

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

Resolución

❖ *Se observa el $\triangle ABD$ es notable*

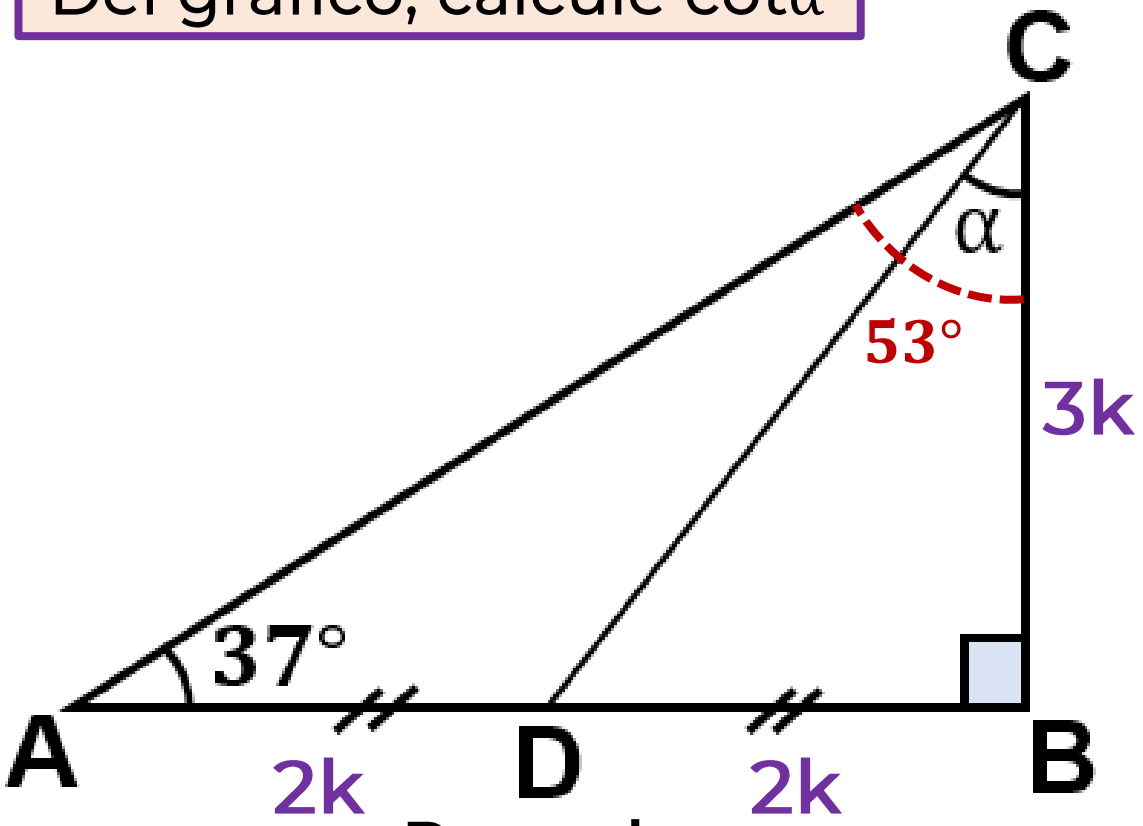


PIDEN:

$$\tan\theta = \frac{\cancel{k\sqrt{3}}}{\cancel{2k}} = \frac{\sqrt{3}}{2}$$

HELICO-PRACTICE 6

Del gráfico, calcule cotα

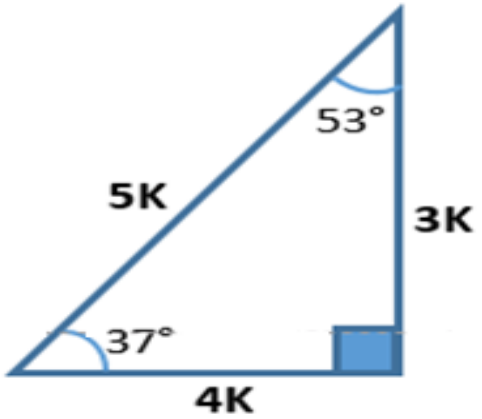


Recordar:

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

Resolución

❖Se observa el

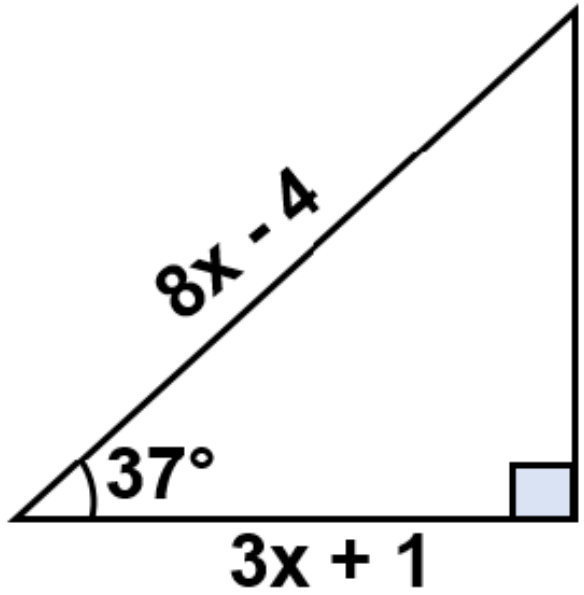


PIDEN

$$\cot\alpha = \frac{\cancel{3K}}{\cancel{2K}} = \frac{3}{2}$$

HELICO-PRACTICE 7

Del gráfico, calcule x.

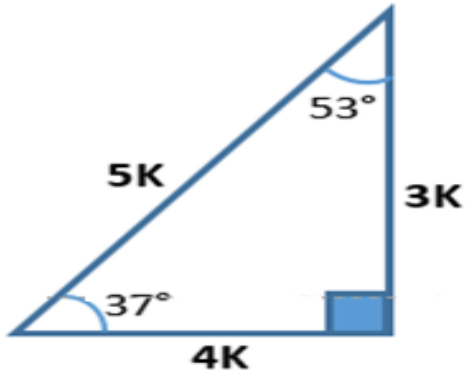


Recordar:

$$\cos\alpha = \frac{CA}{H}$$

Resolución

Recuerda



❖ Del gráfico:

$$\cos 37° = \frac{3x + 1}{8x-4}$$

$$\frac{4\cancel{K}}{5\cancel{K}} = \frac{3x + 1}{8x - 4}$$

$$4(8x - 4) = 5(3x + 1)$$

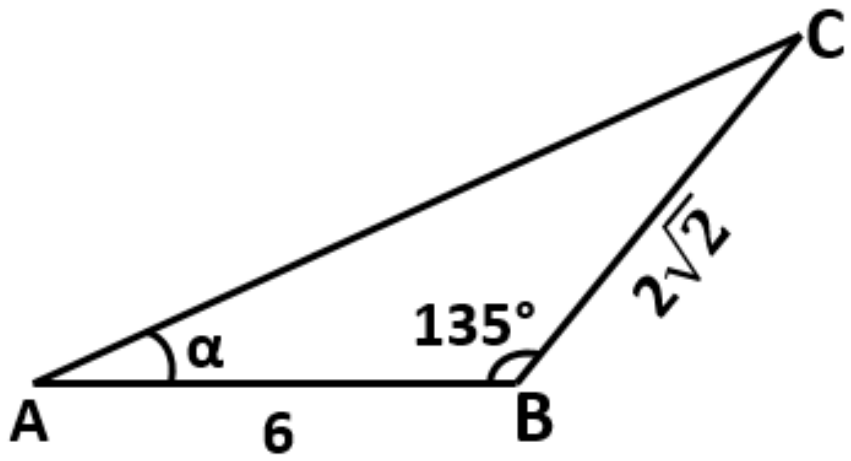
$$32x - 16 = 15x + 5$$

$$17x = 21$$

$$x = \frac{21}{17}$$

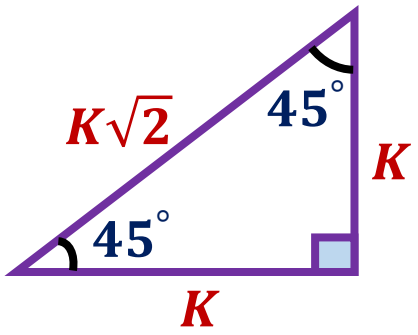
HELICO-PRACTICE 8

Del gráfico, calcule cotα.

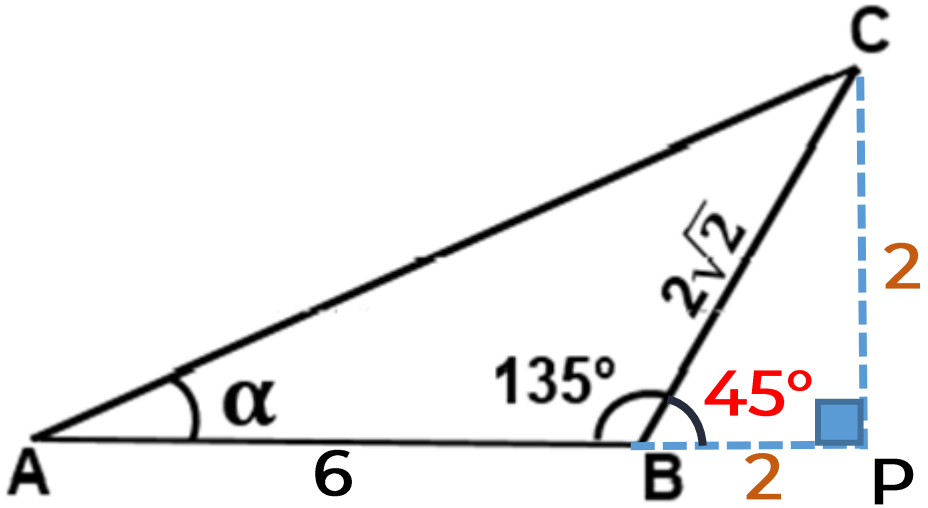


Recordar

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



Resolución



❖ *Se observa el ⊿ BPC es notable*

PIDEN

$$\cot\alpha = \frac{8}{2} = 4$$

COLEGIOS
SACO OLIVEROS APEIRON
SISTEMA HELICOIDAL

MUCHAS GRACIAS POR TU ATENCIÓN

Tu curso amigo
TRIGONOMETRÍA