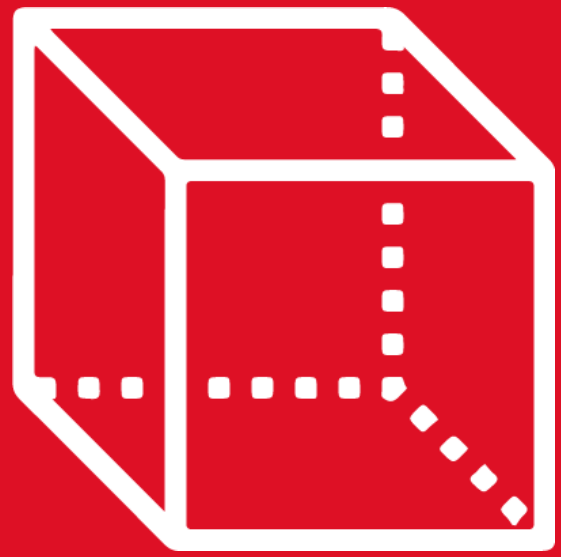
GEOMETRÍA

Capítulo 5

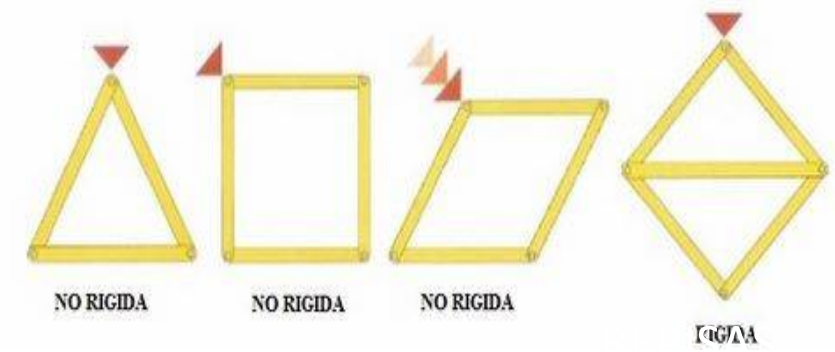


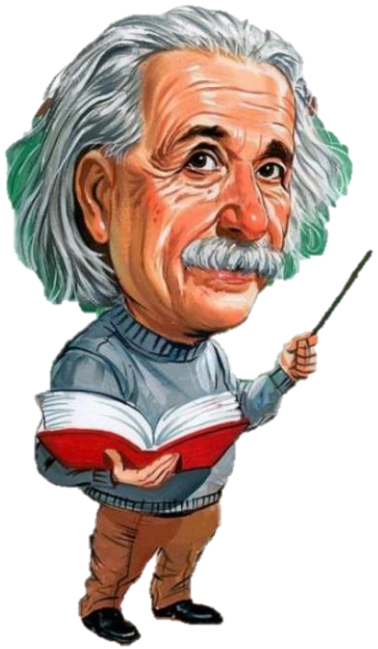
2st
SECONDARY

Triangulos

SACO OLIVEROS

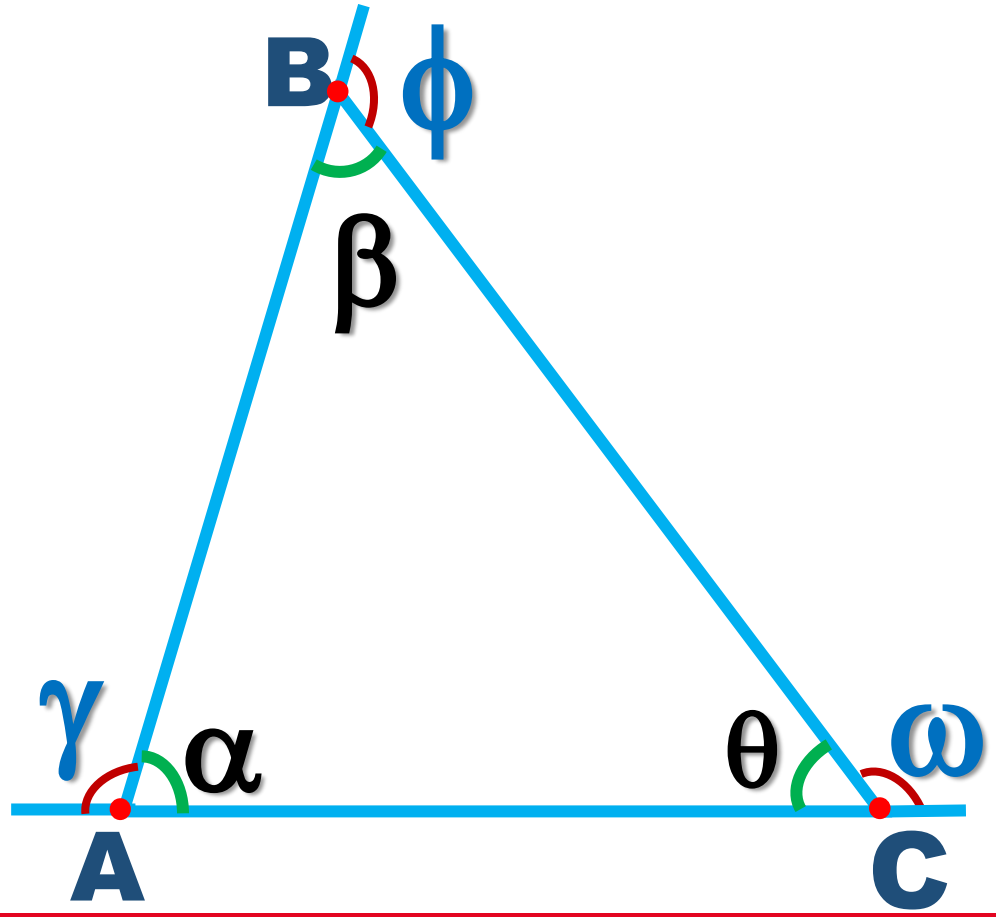
MOTIVATING | STRATEGY





TRIÁNGULOS

Definición : Es aquella figura geométrica formada al unir 3 puntos no colineales mediante segmento de recta.



- VÉRTICES : A , B y C
- LADOS : $\overline{AB}$, $\overline{BC}$ y $\overline{AC}$

TEOREMAS

$$\alpha + \beta + \theta = 180°$$

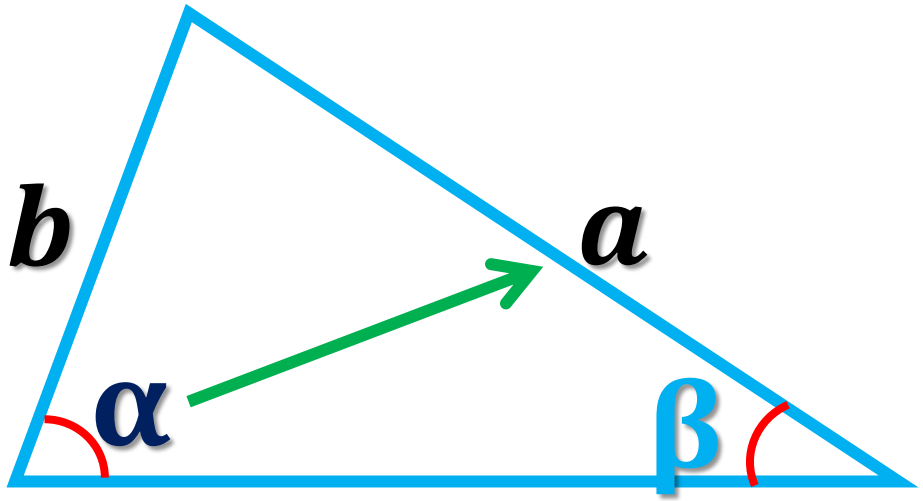
$$\omega + \phi + \gamma = 360°$$

$$\omega = \alpha + \beta$$

$$\phi = \alpha + \theta$$

$$\gamma = \beta + \theta$$

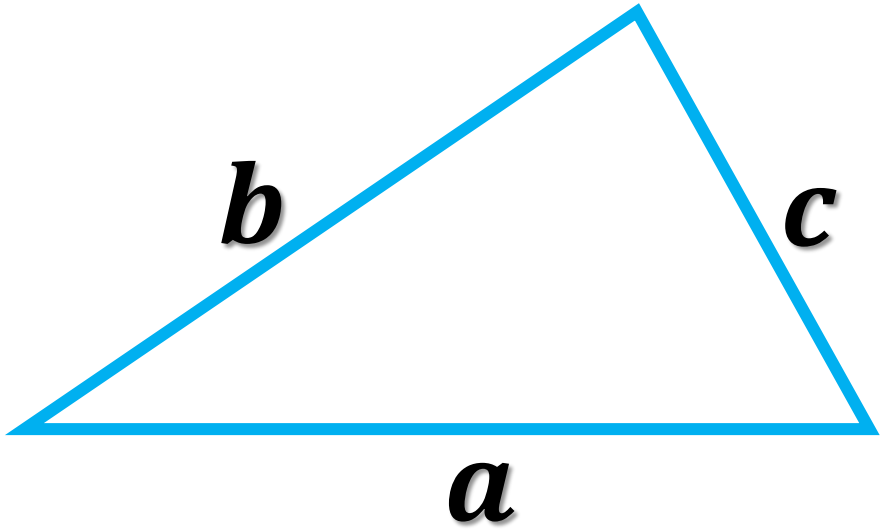
- Teorema de la correspondencia.



Si: $\beta < \alpha$

$b < a$

- Teorema de la Existencia.

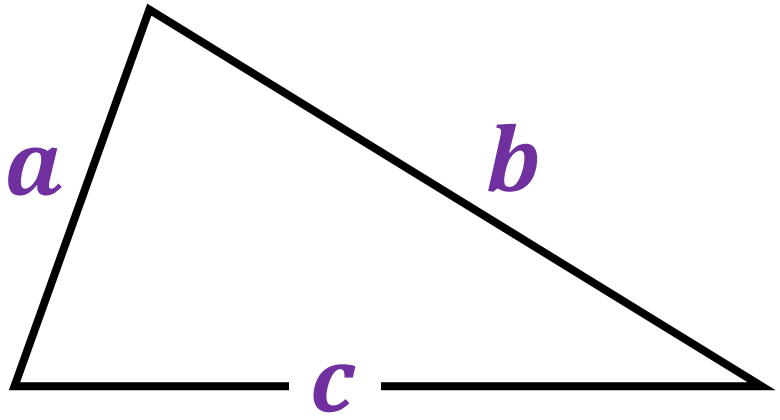


donde: $c < b < a$

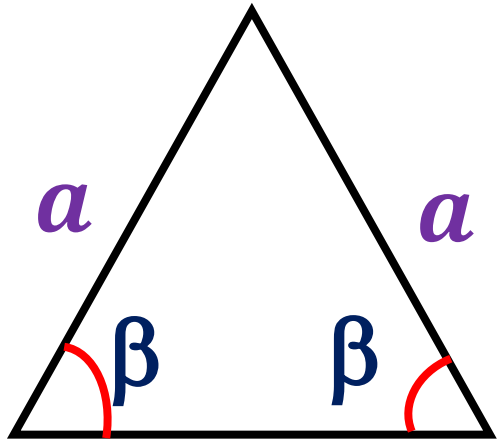
$b-c < a < b+c$

CLASIFICACIÓN DE TRIÁNGULOS

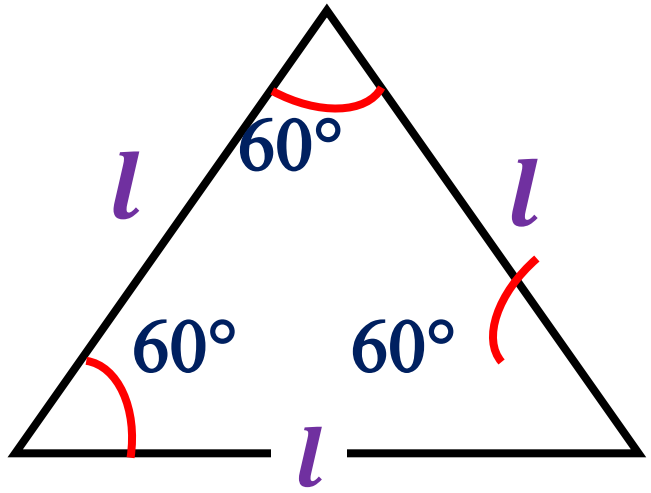
1.- Clasificación según las medidas de los lados.



△ Escaleno



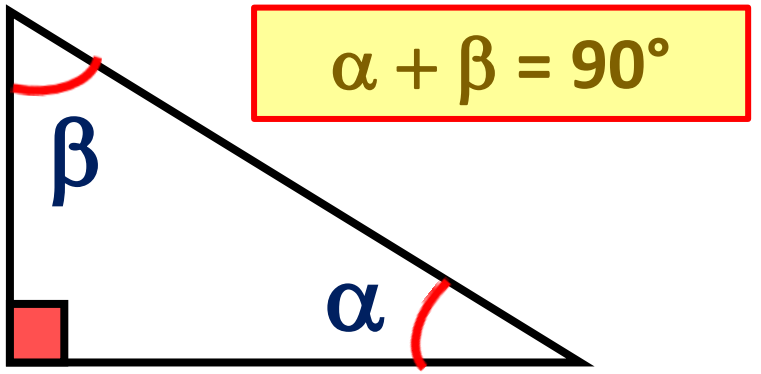
△ Isósceles



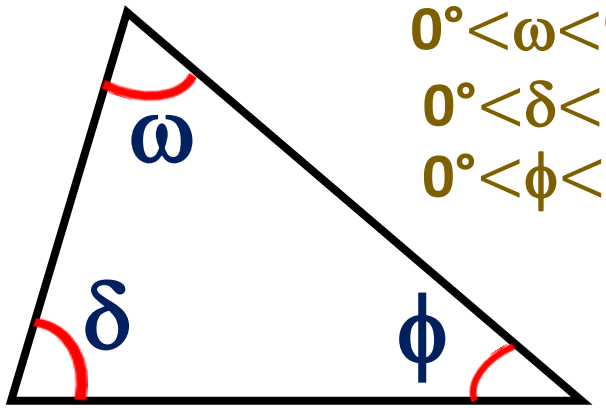
△ Equilátero

CLASIFICACIÓN DE TRIÁNGULOS

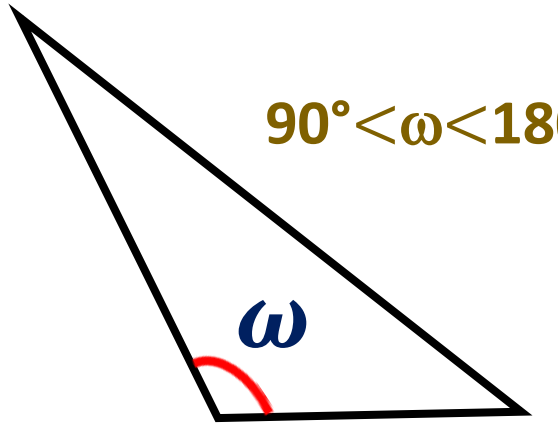
2.- Clasificación según las medidas de sus ángulos.



△ Rectángulo



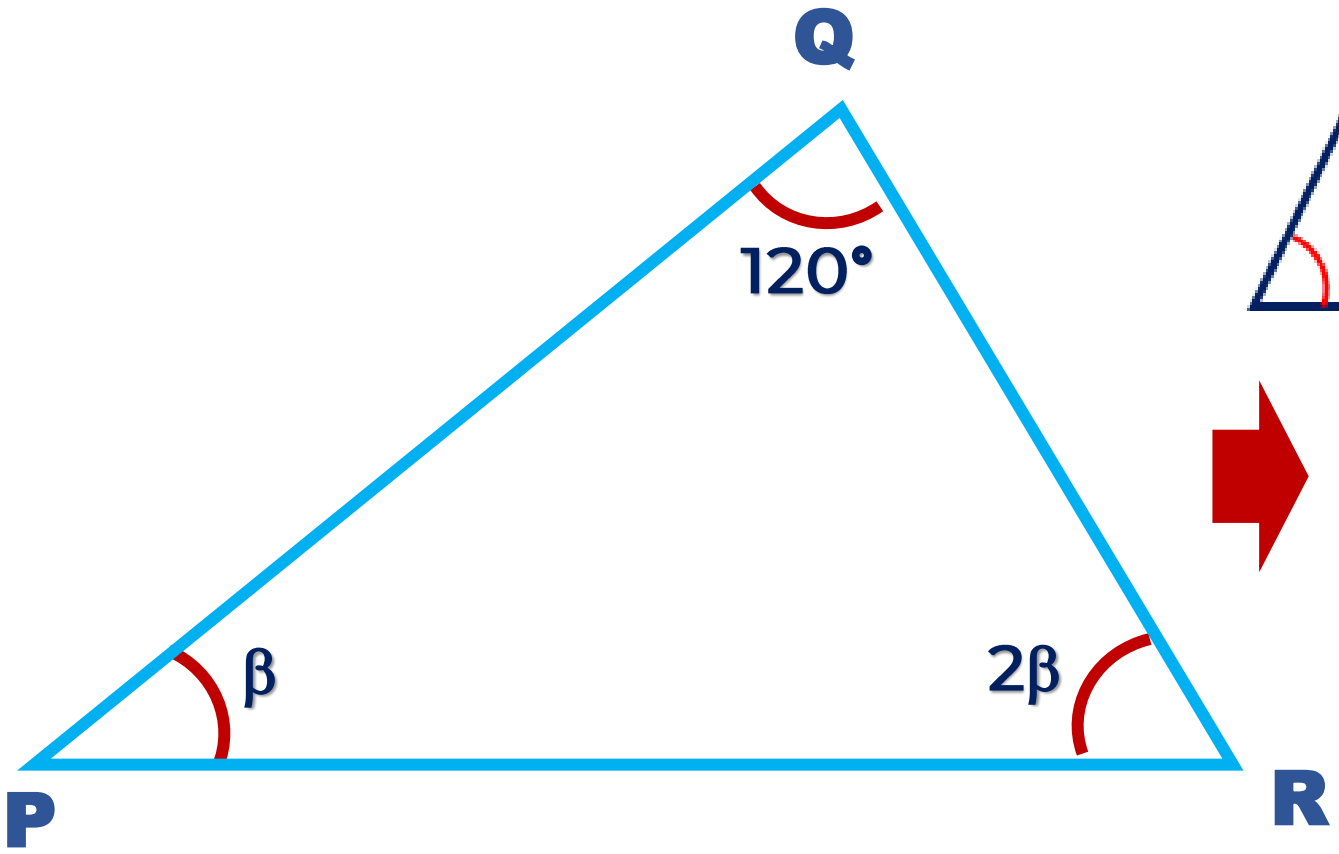
△ Acutángulo

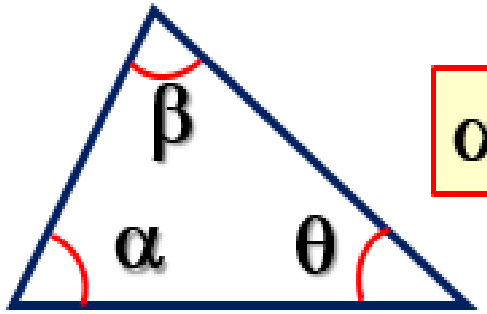


△ Obtusángulo

△ Oblicuángulo

1. Se tiene un triángulo PQR, tal que m<QPR = β, m<PRQ = 2β y m<PQR = 120°. Halle el valor de β.





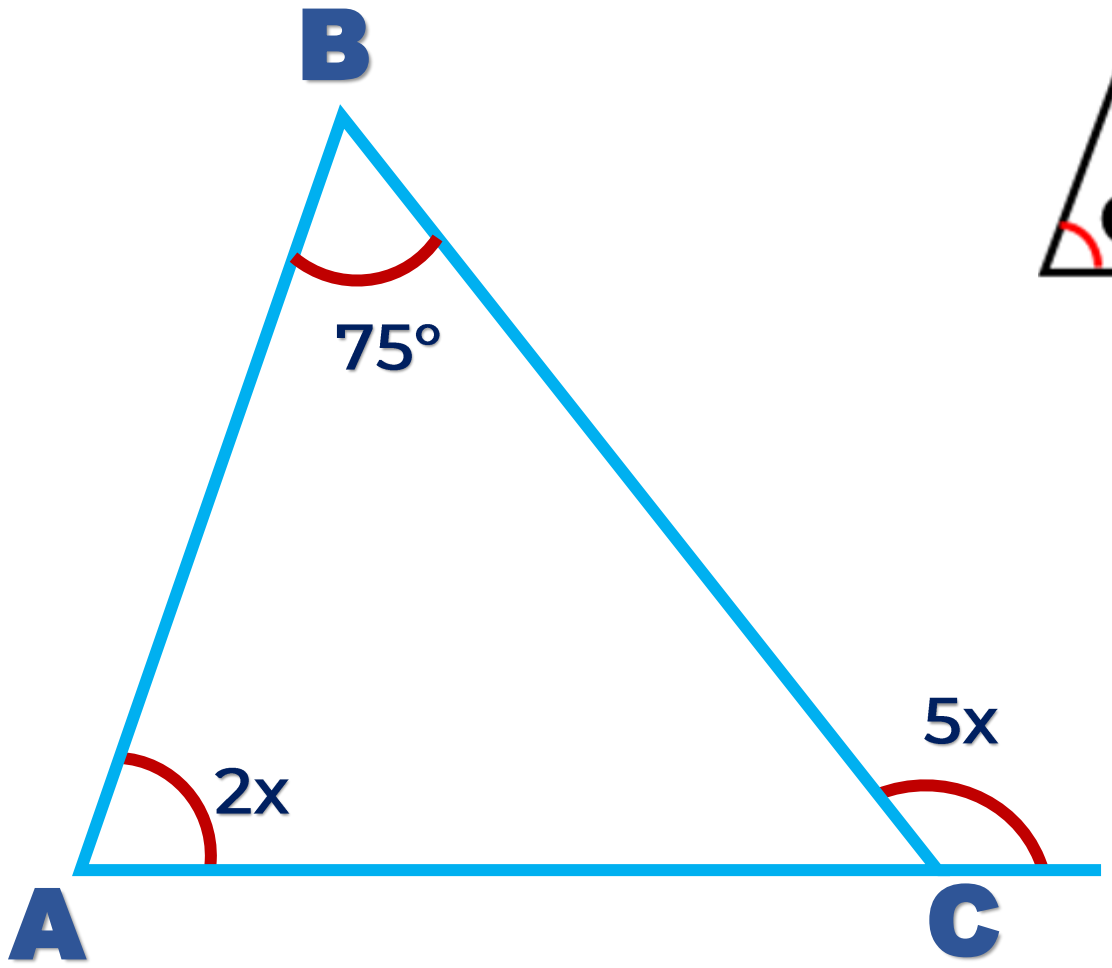
$$\alpha + \beta + \theta = 180°$$

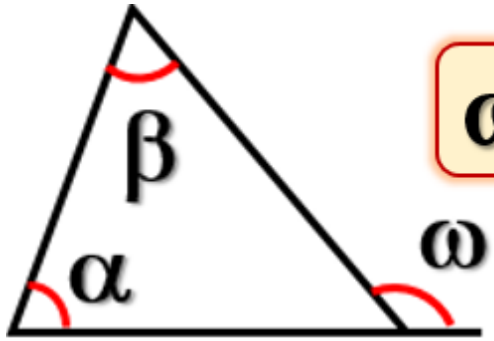
$$\beta + 2\beta + 120° = 180°$$

$$3\beta = 60°$$

$$\beta = 20°$$

2. Halle el valor de x.





$$\omega = \alpha + \beta$$

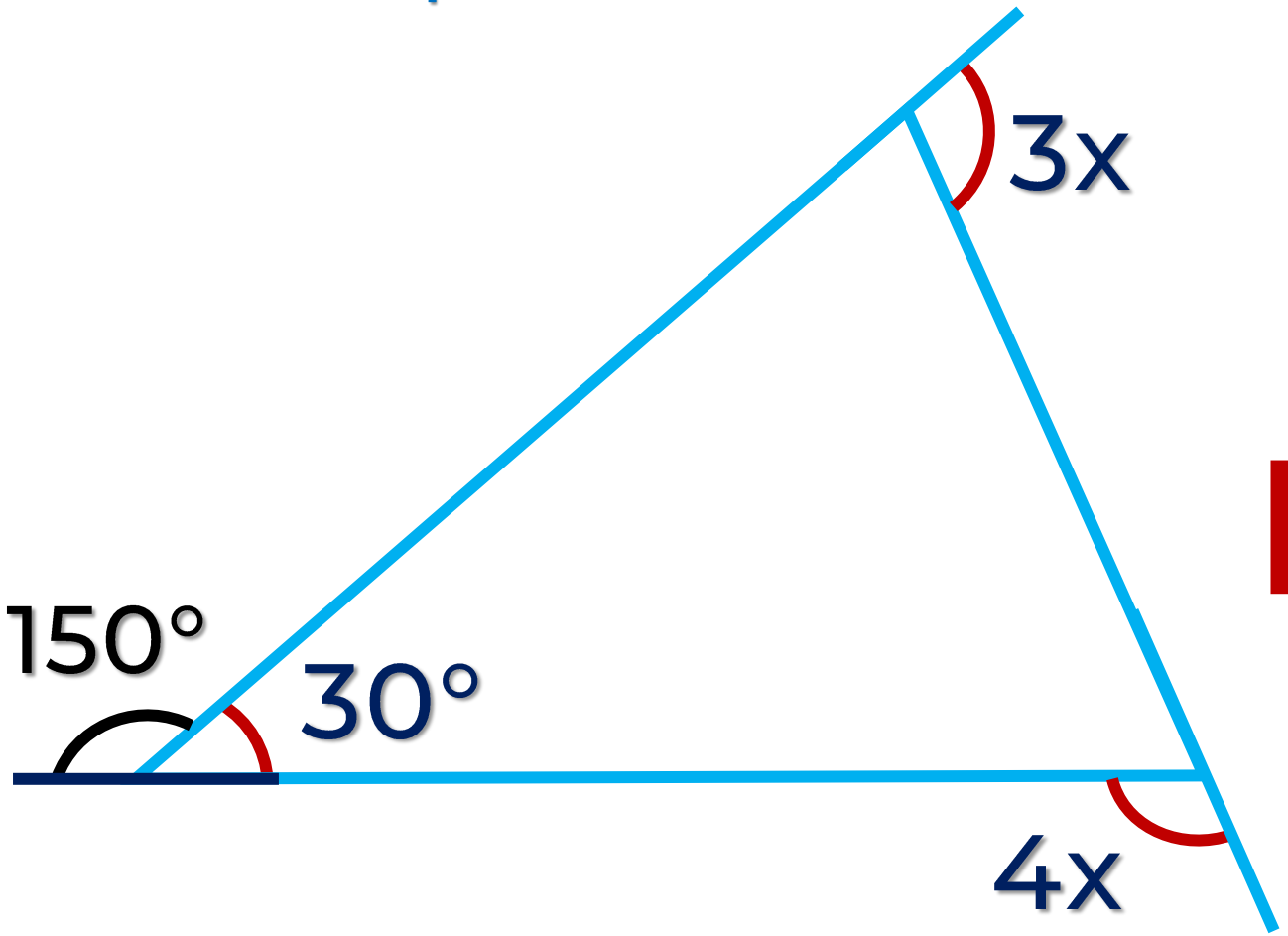
$$5x = 2x + 75°$$

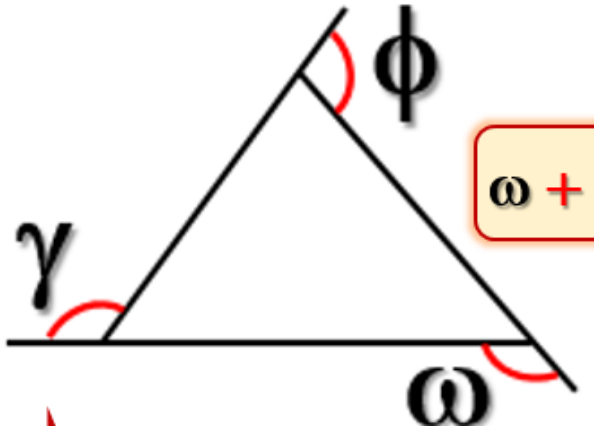
$$5x - 2x = 75°$$

$$3x = 75°$$

$$x = 25°$$

3. Dos ángulos externos de un triángulo miden 3x y 4x y el ángulo interno opuesto mide 30°. Halle el valor de x.





$\omega + \phi + \gamma = 360°$

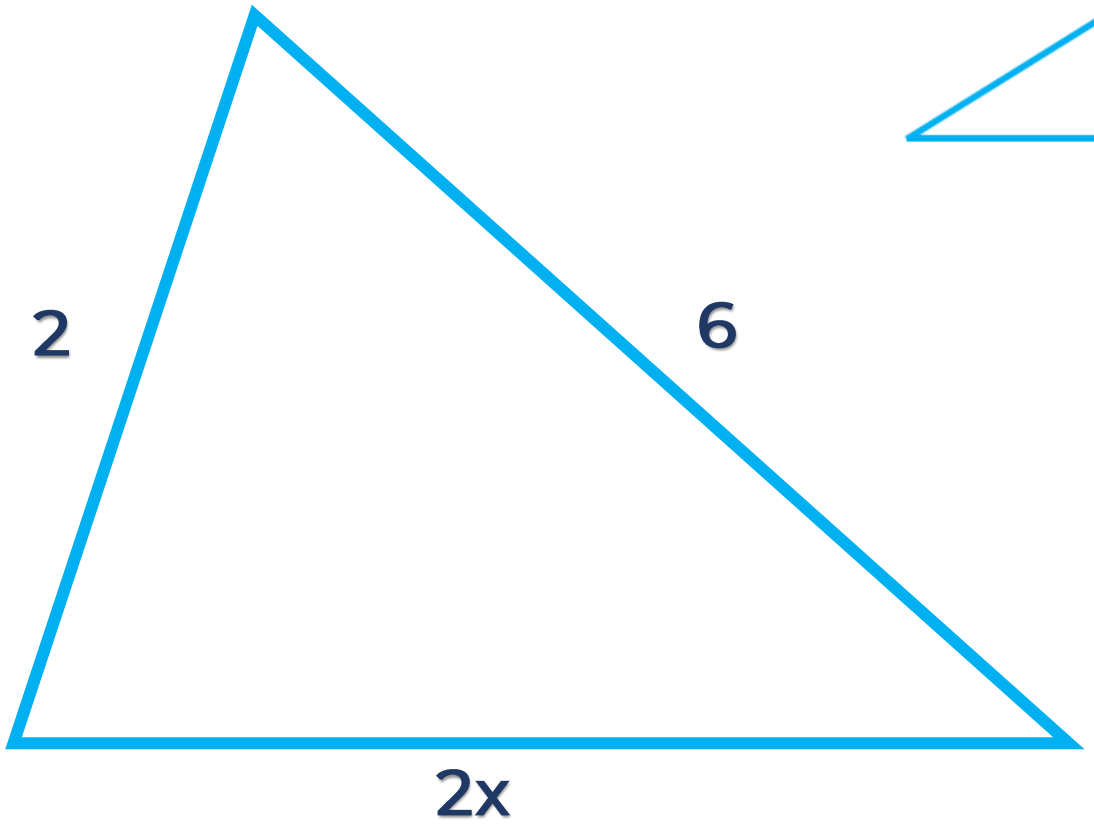
$150° + 3x + 4x = 360°$

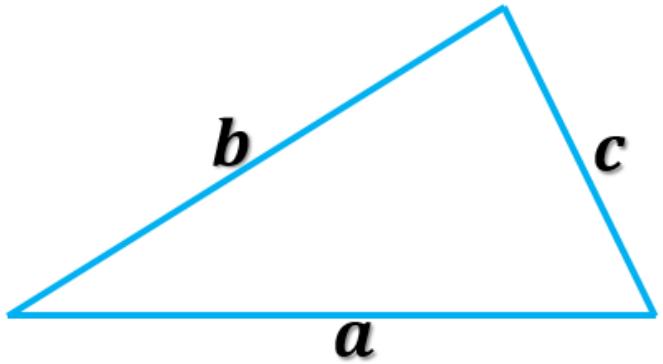
$150° + 7x = 360°$

$7x = 210°$

$x = 30°$

4. Halle el valor entero de x.





donde: $c < b < a$

$$b-c < a < b+c$$

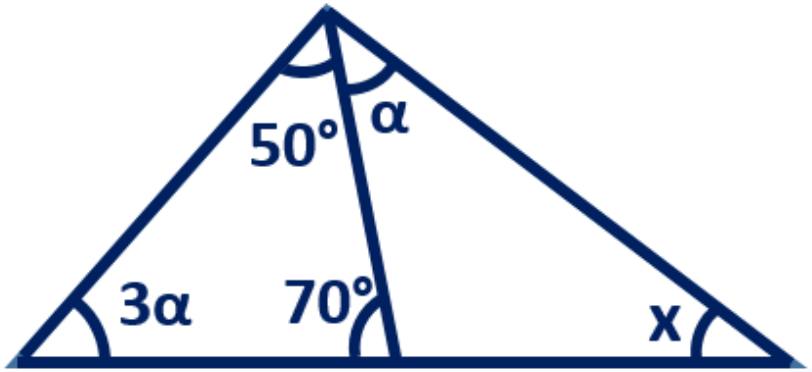
$$6-2 < 2x < 6+2$$

$$4 < 2x < 8$$

$$2 < x < 4$$

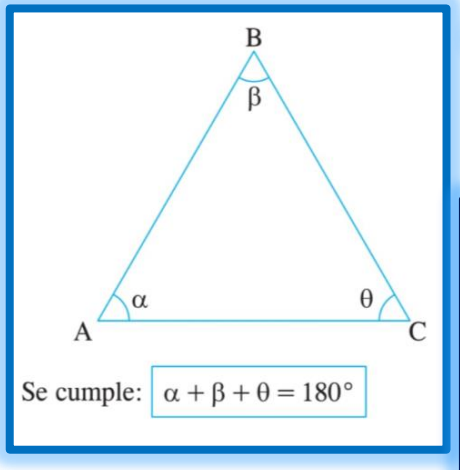
$$x = 3$$

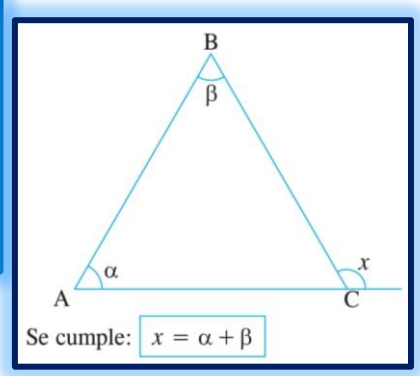
5. Halle el valor de x.

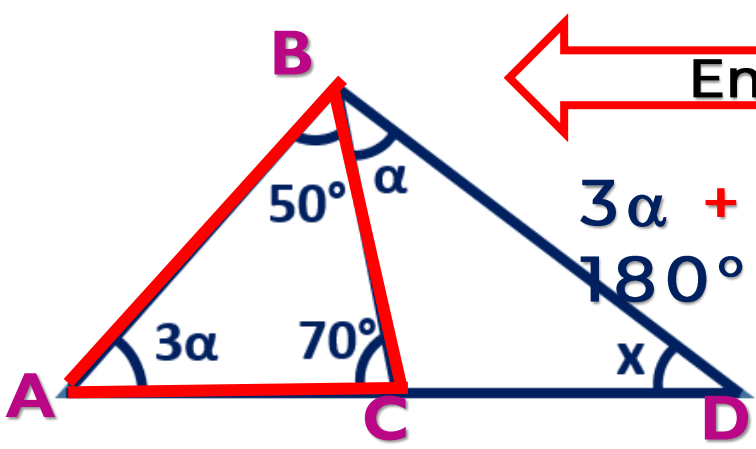


Solución

RECORDEMOS





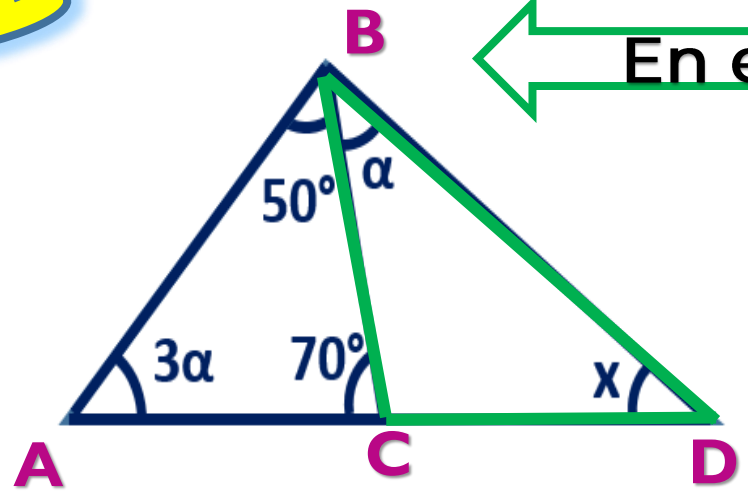


En el Δ ABC

$3\alpha + 50° + 70° = 180°$

$3\alpha = 60°$

$\alpha = 20°$



En el Δ BCD

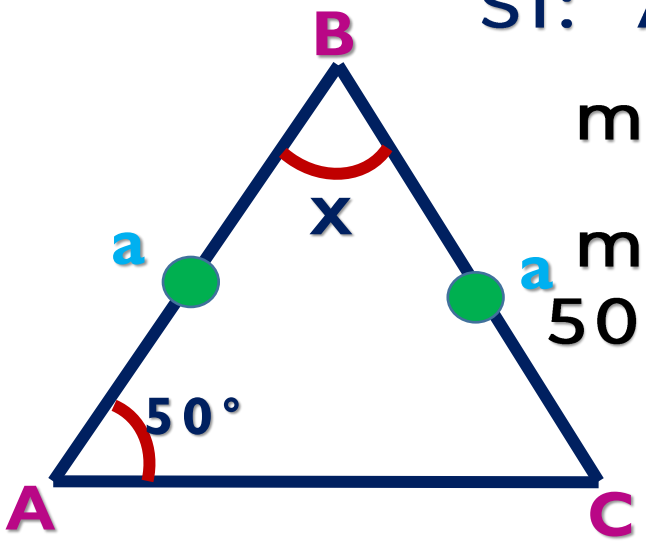
$\alpha + x = 70°$

$20° + x = 70°$

$x = 50°$

6. Se tiene un triángulo isósceles ABC, tal que AB=BC. Además, m<ABC=x y m<BAC=50°. Halle el valor de x.

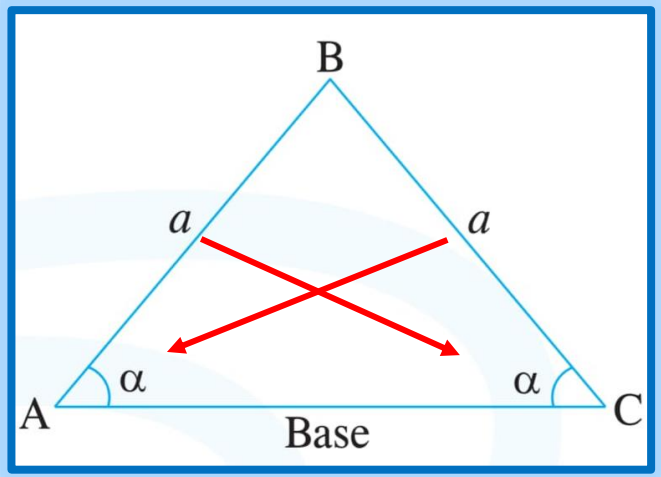
Solución:

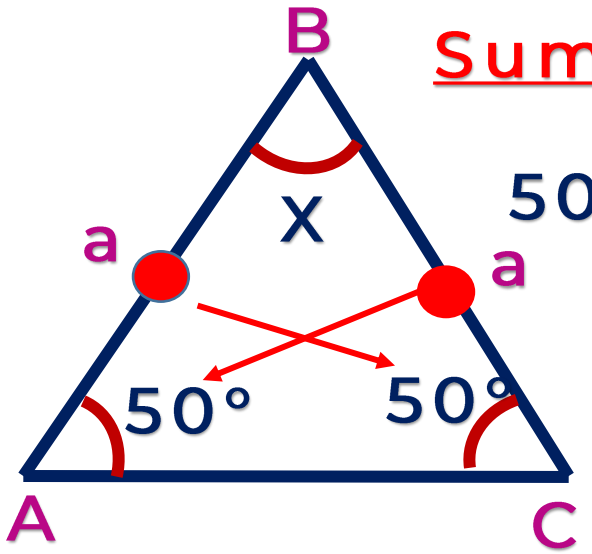


SI: AB = BC = a

m ∢ ABC= X

m ∢ BAC= 50°





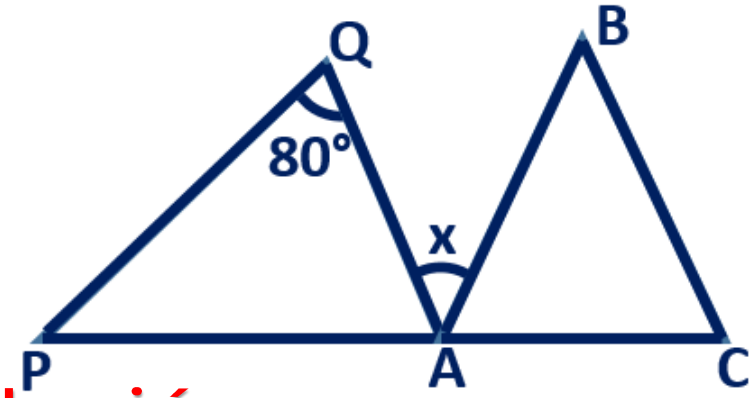
Suma m ∢ internos

50° + x + 50° = 180°

x = 180° - 100°

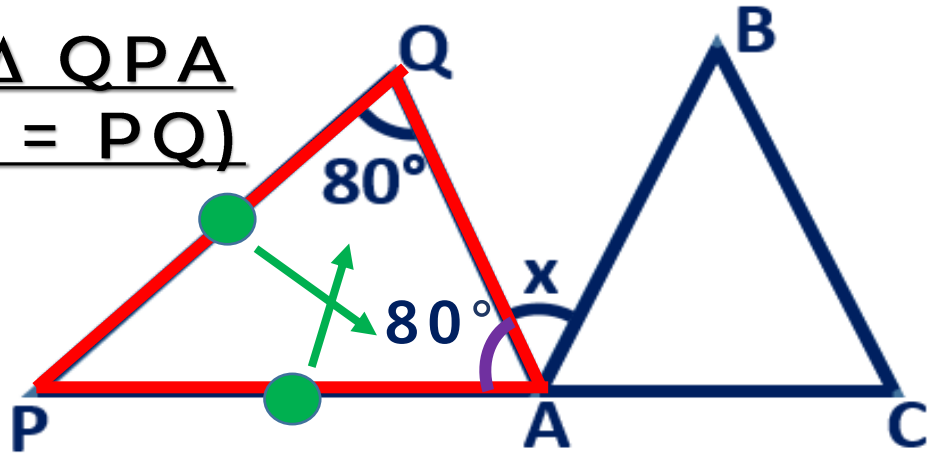
x = 80°

7. Halla el valor de x si el triángulo ABC es equilátero y AP =

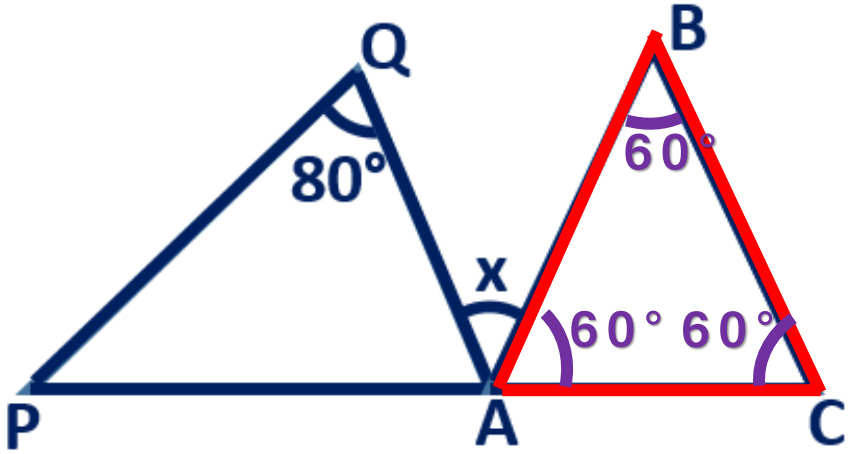


Solución

En Δ QPA (AP = PQ)

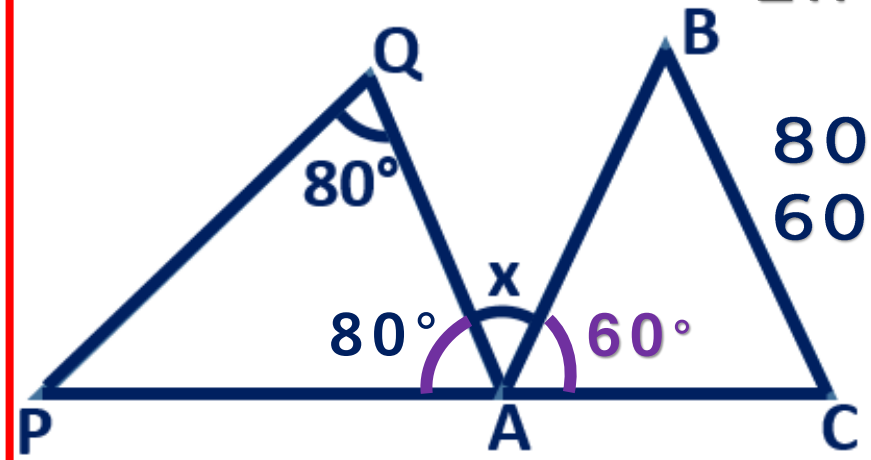


En Δ ABC (Equilátero)



En el gráfico

En el vértice A

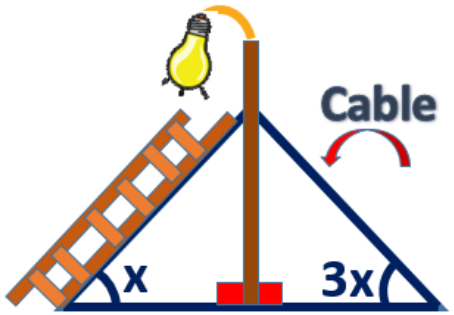


$80° + x + 60° = 180°$

$x = 180° - 140°$

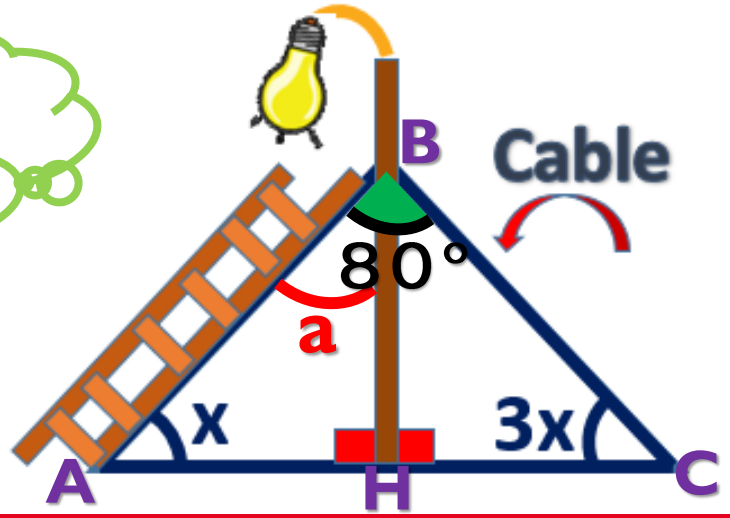
$x = 40°$

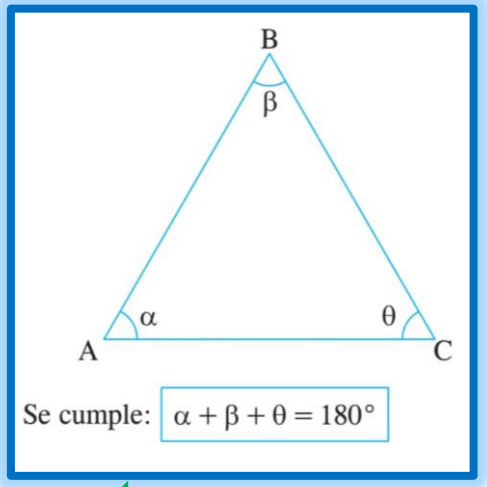
8. Se desea instalar un cable sujeto a un poste, si la escalera y el cable forman 80°. ¿Que ángulo forma la escalera con el poste?



Solución

La escalera y el cable forman 80°





RECORDEMOS

Suma m∢ Internos

En el Δ ABC

$x + 80° + 3x = 180°$

$4x = 100°$

$x = 25°$

En el ⊿AHB

$x + a = 90°$

$25° + a = 90°$

$a = 65°$