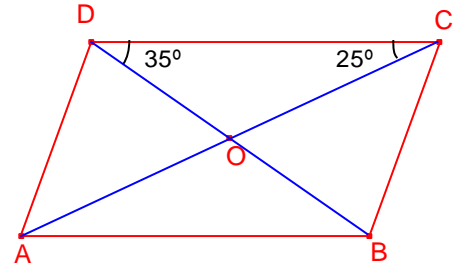


En Un paral·lelogram $ABCD$ $\angle ACD = 25^\circ$, $\angle BDC = 35^\circ$
 Determineu els angles del paral·lelogram.



Solució:

Siga O el centre del paral·lelogram.

Siga $a = \overline{OB} = \overline{OD}$, $b = \overline{OA} = \overline{OC}$

Siga $x = \angle OAD$, en mesures sexagesimals.

$$\angle AOD = 25^\circ + 35^\circ = 60^\circ$$

$$\angle ODA = 180^\circ - (60^\circ + x)$$

Aplicant el teorema dels sinus al triangle $\triangle ABO$

$$\frac{a}{\sin 25^\circ} = \frac{b}{\sin 35^\circ}$$

$$b = \frac{\sin 35^\circ}{\sin 25^\circ} a$$

Aplicant el teorema dels sinus al triangle $\triangle AOD$

$$\frac{a}{\sin x} = \frac{b}{\sin(x + 60^\circ)}$$

$$\frac{a}{\sin x} = \frac{\frac{\sin 35^\circ}{\sin 25^\circ} a}{\sin(x + 60^\circ)}$$

Simplificant:

$$\frac{1}{\sin x} = \frac{\sin 35^\circ}{\sin 25^\circ \cdot \sin(x + 60^\circ)}$$

Obrim el *Menú Ejec-Mat*.

Resolem l'equació:

The screenshot shows a scientific calculator interface. The left window displays the equation $\text{SolveN}\left(\frac{1}{\sin x} = \frac{\sin 35}{\sin 25 \cdot \sin(x+60)}\right)$ and the solution $x = 45.2935191, 225.293$. The right window shows a list of solutions for x in degrees: 3: -494.7, 4: -314.7, 5: -134.7, 6: 45.293, 7: 225.29. Below the list, the angle is displayed as $45^\circ 17' 36.67''$. The calculator is set to 'Math Deg Norm1 d/c | a+bi'.

Aleshores:

$$x = 45^\circ 17' 37''$$

Per tant,

$$A = C = 25^\circ + 45^\circ 17' 37'' = 70^\circ 17' 37''$$

$$B = D = 180^\circ - A = 109^\circ 42' 23''$$