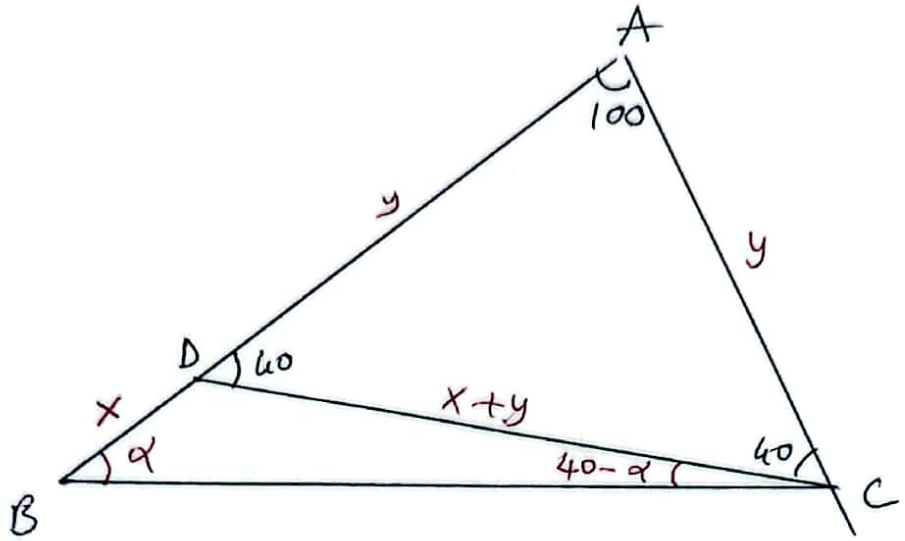


→ ADC üçgeninde sin. teo.

$$\frac{x+y}{\sin 100} = \frac{y}{\sin 40} \quad \text{---(I)}$$

→ ABC üçgeninde sin. teo

$$\frac{x+y}{\sin(80-\alpha)} = \frac{y}{\sin\alpha} \quad \text{---(II)}$$

(I) ve II den $\frac{\sin 80}{\sin 40} = \frac{\sin(80-\alpha)}{\sin\alpha}$

$$\frac{2\cdot\sin 40\cdot\cos 40}{\sin 40} = \frac{\sin(80-\alpha)}{\sin\alpha}$$

$$2\cos 40\cdot\sin\alpha = \sin 80\cdot\cos\alpha - \cos 80\cdot\sin\alpha$$

$$\sin\alpha(2\cos 40+\cos 80) = \sin 80\cdot\cos\alpha$$

$$\tan\alpha = \frac{\sin 80}{2\cos 40+\cos 80} = \frac{\sin 80}{\cos 40+2\cdot\cos 60\cos 20}$$

$$\tan\alpha = \frac{\sin 80}{2\cdot\cos 30\cdot\cos 10} = \frac{1}{\sqrt{3}} \quad \alpha = 30^\circ$$