



$$O'P = 2a \cos \frac{\theta}{2}$$

$$OK = a \cos \theta$$

$$KP = a \sin \theta$$

① α + direct

Angle au centre = 2 x angle inscrit interceptant le même angle $\Rightarrow \alpha = \frac{\theta}{2}$

② Dans $O'KP$: $\alpha + \frac{\pi}{2} + \alpha + \frac{\pi}{2} - \theta = \pi \rightarrow \alpha = \frac{\theta}{2}$

③ Avec la trigo :

$$\bullet \cos \alpha = \frac{O'K}{O'P} = \frac{1 + \cos \theta}{2 \cos \frac{\theta}{2}} = \frac{2 \cos^2 \frac{\theta}{2}}{2 \cos \frac{\theta}{2}} = \cos \frac{\theta}{2}$$

$$\alpha = \frac{\theta}{2} \quad (\text{dans } [0, \frac{\pi}{2}])$$

ou

$$\bullet \sin \alpha = \frac{KP}{O'P} = \frac{\sin \theta}{2 \cos \frac{\theta}{2}} = \frac{2 \cos \frac{\theta}{2} \sin \frac{\theta}{2}}{2 \cos \frac{\theta}{2}} = \sin \frac{\theta}{2} \dots$$

$$\bullet \tan \alpha = \frac{KP}{OK} = \frac{\sin \theta}{1 + \cos \theta} = \frac{2 \cos \frac{\theta}{2} \sin \frac{\theta}{2}}{2 \cos^2 \frac{\theta}{2}} = \tan \frac{\theta}{2} \dots$$