

# RUMUS SETENGAH SUDUT (1/2A)

Dari rumus sudut rangkap cosinus  $\cos 2a = 1 - 2 \sin^2 a = 2 \cos^2 a - 1$  diperoleh

$$\cos 2a = 1 - 2 \sin^2 a$$

$$\Rightarrow 2 \sin^2 a = 1 - \cos 2a$$

$$\Rightarrow \sin^2 a = \frac{1 - \cos 2a}{2}$$

$$\Rightarrow \sin a = \pm \sqrt{\frac{1 - \cos 2a}{2}}$$

$$\Rightarrow \sin \frac{1}{2}A = \pm \sqrt{\frac{1 - \cos A}{2}}$$

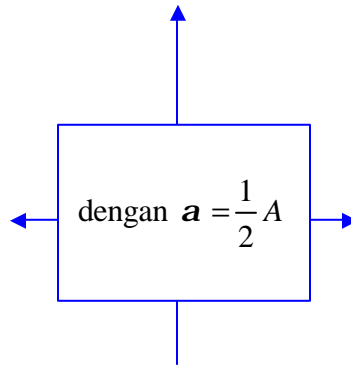
$$\cos 2a = 2 \cos^2 a - 1$$

$$\Rightarrow 2 \cos^2 a = 1 + \cos 2a$$

$$\Rightarrow \cos^2 a = \frac{1 + \cos 2a}{2}$$

$$\Rightarrow \cos a = \pm \sqrt{\frac{1 + \cos 2a}{2}}$$

$$\Rightarrow \cos \frac{1}{2}A = \pm \sqrt{\frac{1 + \cos A}{2}}$$



$$\begin{aligned} \tan \frac{1}{2}A &= \frac{\sin \frac{1}{2}A}{\cos \frac{1}{2}A} \\ &= \pm \frac{\sqrt{\frac{1 - \cos A}{2}}}{\sqrt{\frac{1 + \cos A}{2}}} \\ &= \pm \sqrt{\frac{1 - \cos A}{1 + \cos A}} \\ &= \pm \sqrt{\frac{1 - \cos A}{1 + \cos A}} \end{aligned}$$

$$\begin{aligned} \tan \frac{1}{2}A &= \sqrt{\frac{1 - \cos A}{1 + \cos A}} \\ &= \sqrt{\frac{1 - \cos A}{1 + \cos A} \cdot \frac{1 + \cos A}{1 + \cos A}} \\ &= \sqrt{\frac{1 - \cos^2 A}{(1 + \cos A)^2}} \\ &= \sqrt{\frac{\sin^2 A}{(1 + \cos A)^2}} \\ &= \frac{\sin A}{1 + \cos A} \end{aligned}$$

$$\begin{aligned} \tan \frac{1}{2}A &= \sqrt{\frac{1 - \cos A}{1 + \cos A}} \\ &= \sqrt{\frac{1 - \cos A}{1 + \cos A} \cdot \frac{1 - \cos A}{1 - \cos A}} \\ &= \sqrt{\frac{(1 - \cos A)^2}{1 - \cos^2 A}} \\ &= \sqrt{\frac{(1 - \cos A)^2}{\sin^2 A}} \\ &= \frac{1 - \cos A}{\sin A} \end{aligned}$$

$$\sin \frac{1}{2}A = \pm \sqrt{\frac{1 - \cos A}{2}}$$

$$\cos \frac{1}{2}A = \pm \sqrt{\frac{1 + \cos A}{2}}$$

$$\tan \frac{1}{2}A = \pm \sqrt{\frac{1 - \cos A}{1 + \cos A}} = \frac{1 - \cos A}{\sin A} = \frac{\sin A}{1 + \cos A}$$

