

80d

$k \in \mathbb{Z}$

$$f(z) = \operatorname{tg} z = \frac{\sin z}{\cos z}$$

$$z \in \frac{\pi}{2} + \pi \mathbb{Z}$$

$$g'(z) = -\sin z$$

$$g'(\frac{\pi}{2} + \pi \mathbb{Z}) = -1$$

$$= -1$$

\Rightarrow
0 ma
zera
kontrola $\frac{1}{\cos(\frac{\pi}{2} + \pi \mathbb{Z})}$

$$\operatorname{Res}(f, \frac{\pi}{2} + \pi k \mathbb{Z}) = \lim_{z \rightarrow \frac{\pi}{2} + k\pi} \frac{\sin z}{\cos z} (z - \frac{\pi}{2} - k\pi) =$$

$$\lim_{z \rightarrow \frac{\pi}{2} + k\pi} \frac{\sin z}{\cos z} (z - \frac{\pi}{2} - k\pi) =$$

L'H
 $\lim_{z \rightarrow \dots}$

$$\frac{\sin z + \cos z (z - \frac{\pi}{2} - k\pi)}{-\sin z} \rightarrow -1$$

$$= -1$$

$$\lim \frac{\sin z}{\cos z - \cos(\frac{\pi}{2} + k\pi)} = \lim \frac{\sin z}{z - (\frac{\pi}{2} + k\pi)}$$

$$\lim \frac{\sin(\frac{\pi}{2} + k\pi)}{-\sin(\frac{\pi}{2} + k\pi)} = -1$$