

$$f(z) = e^z$$

$$\operatorname{Re}(e^z) < 0 \quad ; \quad \operatorname{Im}(e^z) = 0$$

$$f(z) = e^{x+iy} = e^x(\cos y + i \sin y) = e^x \cos y + i e^x \sin y$$

$$\operatorname{Re} z = e^x \cos y \quad \operatorname{Im} z = e^x \sin y$$

$$\operatorname{Im} z = 0 \Leftrightarrow e^x \sin y = 0$$

$$e^x > 0 \quad \sin y = 0 \quad \underline{y = k\pi}$$

$$\operatorname{Re} z < 0 \quad e^x \cos y < 0$$

$$e^x > 0 \quad \cos y < 0 \quad y \in (\frac{\pi}{2} + 2k\pi, \frac{3\pi}{2} + 2k\pi)$$

$$\begin{array}{l} y = k\pi \\ y \in (\frac{\pi}{2} + 2k\pi, \frac{3\pi}{2} + 2k\pi) \end{array} \longrightarrow$$

$$y \in (\frac{2k+1}{2}\pi, \pi)$$

↑
 fytlo nepo-yote
 wrotolwotnois: π
 sq. nōwre - 1

$$z = x + (2k+1)\pi$$