

$$\text{I} \quad e^z \neq 0 \quad \forall z \in \mathbb{C}$$

$$e^z = e^x (\cos y + i \sin y)$$

$$e^x = 0 \quad \vee \quad \cos y + i \sin y = 0 \quad \Rightarrow$$

$$\Rightarrow \cos y = \sin y = 0 \Rightarrow$$

$$\Rightarrow \cos^2 y + \sin^2 y = 0$$

спротивно

$$\checkmark$$

$$e^x \cdot e^{-x} = e^0 = 1$$

$$x \in \mathbb{C}$$

Затем $e^z \neq 0$

$$\text{II} \quad w \in \mathbb{C} \quad w \neq 0 \quad \rightarrow z_0 = e^{i\alpha} \quad (\text{46})$$

$$w = \underbrace{|w|}_{>0} \cdot \underbrace{e^{i\alpha}}_{z_0, |z_0|=1} \quad \alpha - \text{arg } w$$

$$\ln |w| = e^{\ln |w|} = e^{\ln |w|} + i\alpha$$

$$e^x \geq 1+x, \quad x > 0$$

$$\downarrow \quad \downarrow x \rightarrow \infty$$

$$\infty \quad \infty$$

$$e^{-x} = \frac{1}{e^x} \quad (1, \infty)$$

$$(0, 1)$$