

$$a) e^z = i, \quad z = a + bi$$

$$\Rightarrow$$

$$e^z = e^{a+bi} = e^a \cdot e^{bi} = e^a (\cos b + i \sin b) =$$

$$= \underbrace{1 \cdot (\cos \frac{\pi}{2} + i \sin \frac{\pi}{2})}_{\Leftrightarrow i}$$

$$\begin{cases} a = \ln 1 = 0 \\ b = \frac{\pi}{2} + n2\pi \end{cases}$$

$$\text{s\u00e5 } z = 0 + i \left(\frac{\pi}{2} + n2\pi \right) = i \left(\frac{\pi}{2} + n2\pi \right)$$

$$b) e^z = 1+i, \quad z = a+bi$$

$$e^z = e^a (\cos b + i \sin b) = \underbrace{\sqrt{2} \left(\cos \frac{\pi}{4} + i \sin \frac{\pi}{4} \right)}_{1+i}$$

$$\Leftrightarrow$$

$$\begin{cases} a = \ln \sqrt{2} = \frac{1}{2} \ln 2 \\ b = \frac{\pi}{4} + n2\pi \end{cases}$$

$$\text{s\u00e5 } z = \frac{1}{2} \ln 2 + i \left(\frac{\pi}{4} + n2\pi \right)$$