

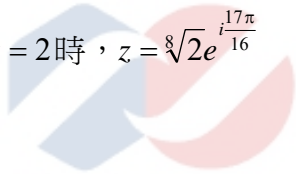
Find $(1+i)^{1/4}$. [102 海洋光電 7]

[解]令 $z = (1+i)^{1/4}$, 而 $1+i = \sqrt{2}e^{i\frac{\pi}{4}}$

$$z = [\sqrt{2}e^{i(\frac{\pi}{4}+2k\pi)}]^{1/4} = \sqrt[4]{2}e^{i(\frac{\pi}{4}+2k\pi)/4}$$

$$k=0 \text{ 時, } z = \sqrt[4]{2}e^{i\frac{\pi}{16}} \quad k=1 \text{ 時, } z = \sqrt[4]{2}e^{i\frac{9\pi}{16}}$$

$$k=2 \text{ 時, } z = \sqrt[4]{2}e^{i\frac{17\pi}{16}} \quad k=3 \text{ 時, } z = \sqrt[4]{2}e^{i\frac{25\pi}{16}}$$



南臺科技大學

Southern Taiwan University of Science and Technology