

ESERCIZIO 3)

Calcolare il numero complesso :

$$\frac{(1+i)(3-3i)}{(\sqrt{2}+i\sqrt{6})^5}$$

$$\frac{(1+i)(3-3i)}{(\sqrt{2}+i\sqrt{6})^5} = \frac{6}{\sqrt{8^5}} e^{-i\frac{5}{3}\pi}$$

$$1+i = \sqrt{2}e^{i\frac{\pi}{4}} \quad 3-3i = 3(1-i) = 3\sqrt{2}e^{-i\frac{\pi}{4}}$$

$$\sqrt{2}+i\sqrt{6} = \sqrt{8}\left(\frac{1}{2}+i\frac{\sqrt{3}}{2}\right) = \sqrt{8}e^{i\frac{\pi}{3}}$$

$$(\sqrt{2}+i\sqrt{6})^5 = \sqrt{8^5}e^{i\frac{5}{3}\pi}.$$