EE1002 Principles of Electronic Engineering Tutorial 1

1.

(i) We only encounter real numbers in our daily life but not complex numbers. Why should we study complex number?

(ii) Find the modulus and argument of $-j$, -3, $1 + j$, $\cos\theta + j\sin\theta$. Please also find their complex conjugates.

2. Express the following complex numbers in their Cartesian (rectangular) forms

(a) $\dfrac{5+4j}{5-4j}$ (b) $\dfrac{1}{2+3j}$

(c) $\dfrac{1}{2+3j}+\dfrac{1}{2-3j}$ (d) $\dfrac{1}{x-jy}$

3. It is assumed that $z_1 = e^{-j\frac{\pi}{4}}$ and $z_2 = 1 - j\sqrt{2}$.

(i) Find z_1 and z_1^2 in Cartesian (rectangular) form.

(ii) Express z_2 and z_2^2 in polar form.

(iii) Find z_1/z_2 in Cartesian (rectangular) form.