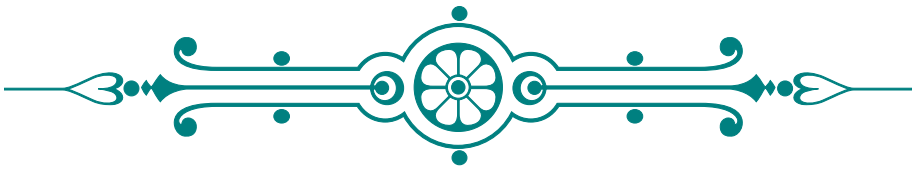

정보통신 수학 및 실습
Homework

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Chapter 4 Homework

1. Find the polar forms of the following complex numbers.

a) $\cos(\frac{\pi}{4}) + jsin(\frac{\pi}{4})$

$e^{j\frac{\pi}{4}}$

b) $\frac{1}{\sqrt{2}} + j\frac{1}{\sqrt{2}}$

$e^{j\frac{\pi}{4}}$

2. Change the following polar forms to complex numbers.

a) $5\angle\pi$

$5(\cos\pi + j\sin\pi) = 5(-1) = -5$

b) $2\angle\frac{\pi}{4}$

$2(\frac{1}{\sqrt{2}} + j\frac{1}{\sqrt{2}}) = \sqrt{2} + j\sqrt{2}$

3. Simplify the following complex numbers.

a) $\frac{2+j5}{3-j}$

$\frac{1}{10} + \frac{17i}{10}$

b) $j(5+2j)(3-j)$

$-1 + 17i$

4. Find the phasor whose magnitude is 5 [V], frequency is 60Hz and initial phase is $\frac{\pi}{4}$.

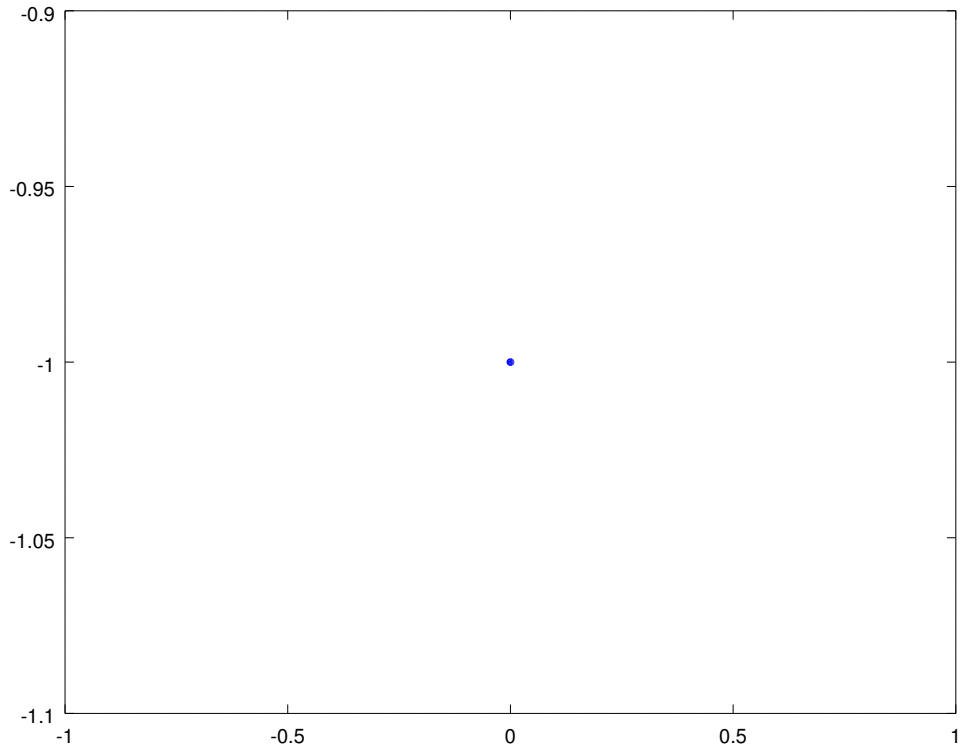
$5e^{j2\pi60(t+\frac{\pi}{4})}$

5. Find the distance between two complex number z1=x1+jy1 and z2=x2+jy2.

$\sqrt{(x1-x2)^2 + (y1-y2)^2}$

6. Find the coordinates of the following complex numbers and plot them.

a) $-\sqrt{-1}$



b) $62\angle 60 + 12\angle 30$

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plot(62*e**(i*60)+12*e**(i*30))
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