

Mathematics of Digital Signal Processing (cont'd)



Lab Exercise 11:

1. Find the equivalent polar and exponential forms of the below complex numbers:

- $5 + 2j$
- $5 - 2j$
- $6 + 4j$
- $5 - 5j$
- $2 + 3j$

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2. Find the equivalent rectangular form of the below complex numbers:

- $2e^{\frac{\pi}{3}j}$
- $-4e^{\frac{\pi}{6}j}$
- $5\left(\cos\frac{\pi}{3} + j\sin\frac{\pi}{3}\right)$
- $2\left(\cos\frac{\pi}{4} + j\sin\frac{\pi}{4}\right)$

3. For the two complex numbers given below, find the equivalent polar and exponential forms. Then, calculate z_1z_2 and $\frac{z_1}{z_2}$ for each of the 3 forms and show that they are equal.

- $z_1 = 2 + 3j$ and $z_2 = -1 + 4j$