

EECE 2150 - Circuits and Signals: Biomedical  
Applications Fall 2022  
Quiz 6

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Student Name: \_\_\_\_\_

1. Convert  $6 + j8$  to polar form. Express angle in degrees.

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2. What is the conjugate of  $15 \text{ Volts} \angle 73^\circ$ .

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3. What is the product  $(1 + j) \times 3j$ ?

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4. Write  $5 \text{ Volts} \cos(2\pi ft + \pi/4)$  as a sum of positive and negative frequency components. Leave them in polar form.

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# Solution

1. Convert  $6 + j8$  to polar form. Express angle in degrees.

$$10\angle 53^\circ$$

2. What is the conjugate of  $15 \text{ Volts} \angle 73^\circ$ .

$$15 \text{ Volts} \angle -73^\circ$$

3. What is the product  $(1 + j) \times 3j$ ?

$$3j - 3 = -3 + 3j.$$

4. Write  $5 \text{ Volts} \cos(2\pi ft + \pi/4)$  as a sum of positive and negative frequency components. Leave them in polar form.

$$2.5e^{j\pi/4}e^{j2\pi ft} + 2.5e^{-j\pi/4}e^{-j2\pi ft}$$