



► Pre-course Materials

► Topic 1: Course Overview

► Topic 2: Lossless Source Coding: Hamming Codes

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6.1 Complex Numbers

Week 3 Quiz due Nov 16, 2015 at 15:30 UTC

6.2 Complex Exponentials

Week 3 Quiz due Nov 16, 2015 at 15:30 UTC

6.3 Aliasing

6.2 QUIZ QUESTION 1 (1/1 point)

What is the real part of $e^{j \cdot 2\pi \cdot 0.1}$ to two decimal places (e.g. 3.14)?

✓ Answer: 0.8080

What is the imaginary part of $e^{j \cdot 2\pi \cdot 0.1}$ to two decimal places?

✓ Answer: 0.5878

EXPLANATION

The real part is $\cos(2\pi \cdot 0.1) \approx 0.8090$.

The imaginary part is $\sin(2\pi \cdot 0.1) \approx 0.5878$.

You have used 2 of 3 submissions

6.2 QUIZ QUESTION 2 (1/1 point)

Considering the complex exponential $e^{j \cdot 2\pi \cdot 0.025t}$ for $t \geq 0$, where t is measured in seconds. This rotates around the origin, tracing out the unit circle.

How many seconds does it take for this complex exponential to complete one rotation around the origin?

✓ Answer: 40

Week 3 Quiz due Nov
16, 2015 at 15:30 UTC

6.4 Discrete Fourier Transform

Week 3 Quiz due Nov
16, 2015 at 15:30 UTC

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EXPLANATION

The argument goes from 0 to 2π in one period T , where
 $2\pi \cdot 0.025 \cdot T = 2\pi$. Thus,

$$T = 0.025^{-1} = 40.$$

You have used 1 of 3 submissions

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