



► Pre-course Materials

► Topic 1: Course Overview

► Topic 2: Lossless Source Coding: Hamming Codes

▼ Topic 3: The Frequency Domain

3.1 Music

3.2 Continuous-time Sinusoids

Week 2 Quiz due Nov 09, 2015 at 15:30 UTC

3.3 Discrete-time Sinusoids

Week 2 Quiz due Nov 09, 2015 at 15:30 UTC

3.4 Fourier Series

Week 2 Quiz due Nov 09, 2015 at 15:30 UTC

3.5 Lab 2 – Frequency analysis

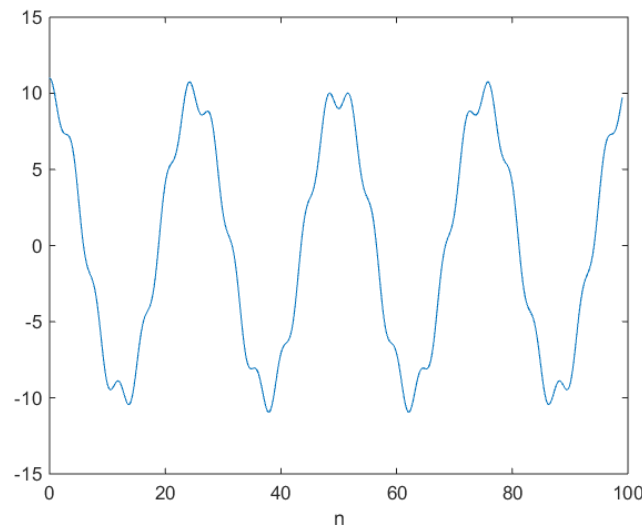
Lab due Nov 09, 2015 at 15:30 UTC

► Topic 4: Lossy Source Coding

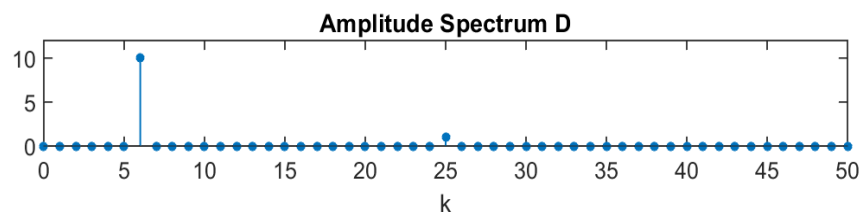
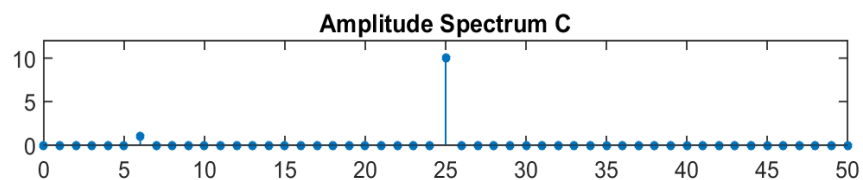
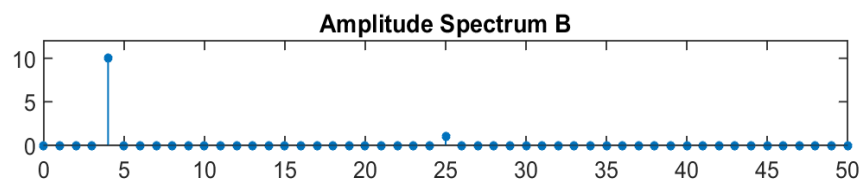
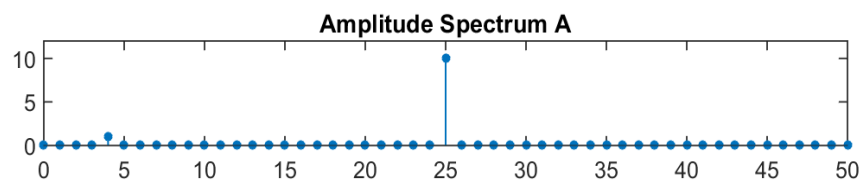
► MATLAB download and tutorials

3.4 QUIZ QUESTION 1 (1 point possible)

Consider the following discrete time signal with 100 samples shown below.



Which of the plots below shows the corresponding Fourier series amplitude spectrum?



► MATLAB
Sandbox

☒ Amplitude Spectrum A ✖

☐ Amplitude Spectrum B ✔

☐ Amplitude Spectrum C

☐ Amplitude Spectrum D

Incorrect: $A_4 = 1, A_{25} = 10$

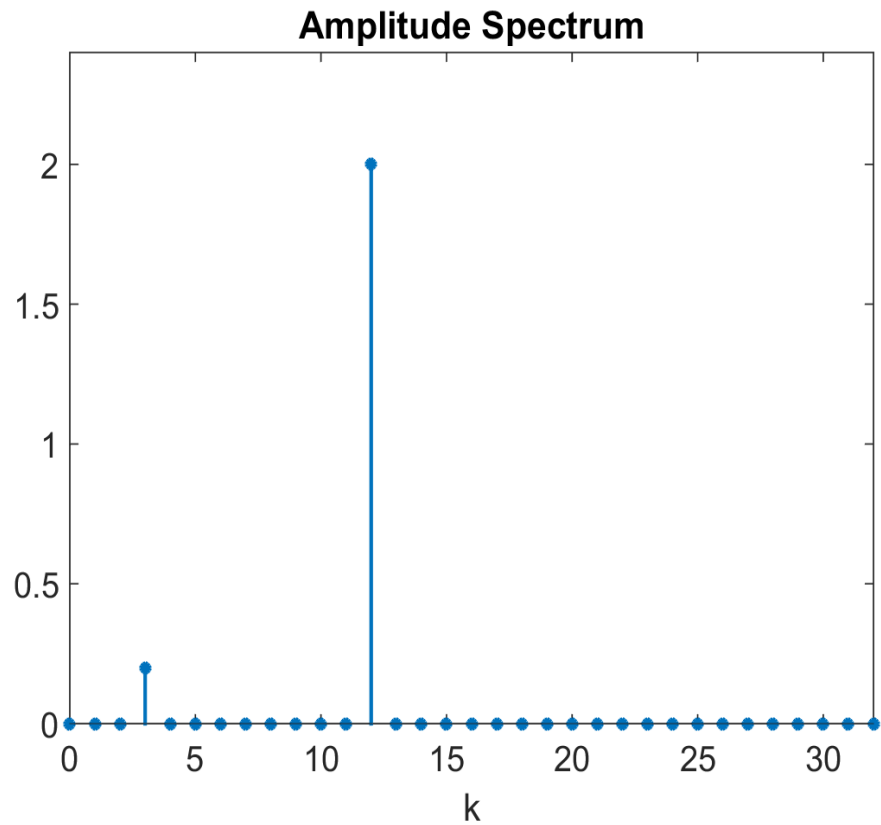
EXPLANATION

The signal consists of a large low frequency cosine that oscillates 4 times over the 100 samples plus a smaller high frequency cosine that oscillates 25 times over the 100 samples.

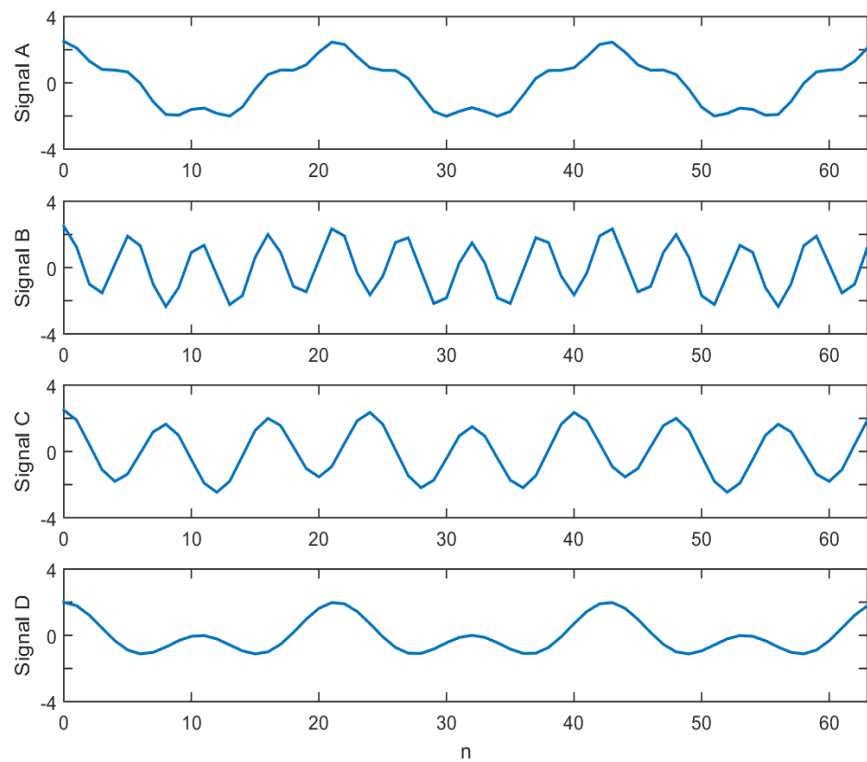
You have used 2 of 2 submissions

3.4 QUIZ QUESTION 2 (1/1 point)

Consider a discrete time signal with 64 samples, whose the amplitude spectrum is shown below.



Which of the plots show the corresponding signal?



☐ Signal A

☒ Signal B ✓

☐ Signal C

☐ Signal D

Correct: $0.5 \cos(2\pi \frac{3}{64} n) + 2 \cos(2\pi \frac{12}{64} n)$

EXPLANATION

The signal contains a large frequency component at $k = 12$, which oscillates up and down 12 times over the 64 samples. Only Signal B displays this large frequency component.

You have used 1 of 2 submissions

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