



► 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

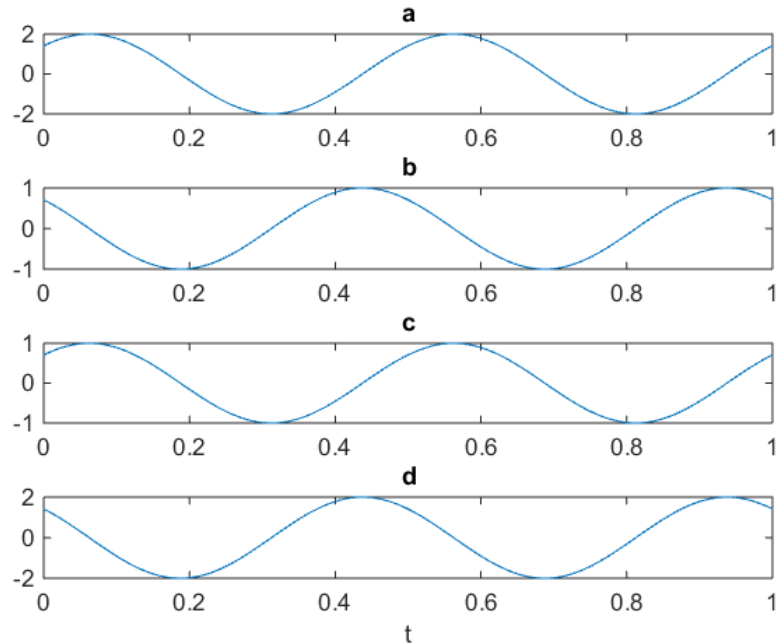
Lab due Nov 09, 2015 at 15:30 UTC

► Topic 4: Lossy Source Coding

► MATLAB download and tutorials

3.2 QUIZ QUESTION 1 (1/1 point)

Which of the following signals corresponds to the waveform $2 \cos(4\pi t + \frac{\pi}{4})$?



☐ signal a

☐ signal b

☐ signal c

☒ signal d

EXPLANATION

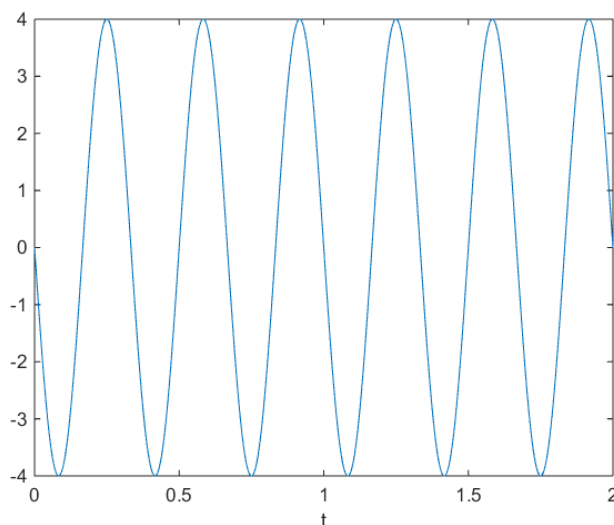
Only signal d has the correct amplitude (2), and phase shift. A positive phase shift leads to a time advance (i.e. the peak value occurs before time 0).

► MATLAB
Sandbox

You have used 2 of 2 submissions

3.2 QUIZ QUESTION 2 (0.33/1 point)

The waveform plotted below can be expressed by $A \cos(2\pi ft + \phi)$ where $A > 0$, $f > 0$ and ϕ lies between $-\pi$ and π . Assume that t is in seconds and that f is in Hertz.



Find the value for A .

✓ Answer: 4

Find the value for f .

✗ Answer: 3

The phase can be expressed as $\phi = k * \pi$. Find the numerical value of k .

✗ Answer: 1/2

EXPLANATION

The amplitude A is the peak value.

The frequency is the number of complete periods in one second.
There are in total 6 periods in 2 seconds. Thus, $f = 6/2 = 3\text{Hz}$.

At time $t=0$, the cosine wave is going through zero with negative slope, which is its behavior when the phase is $\pi/2$.

You have used 3 of 3 submissions

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