edX   **HKUSTx: ELEC1200.2x A System View of Communications: From Signals to...**

3.2 QUIZ QUESTION 1 (1/1 point)

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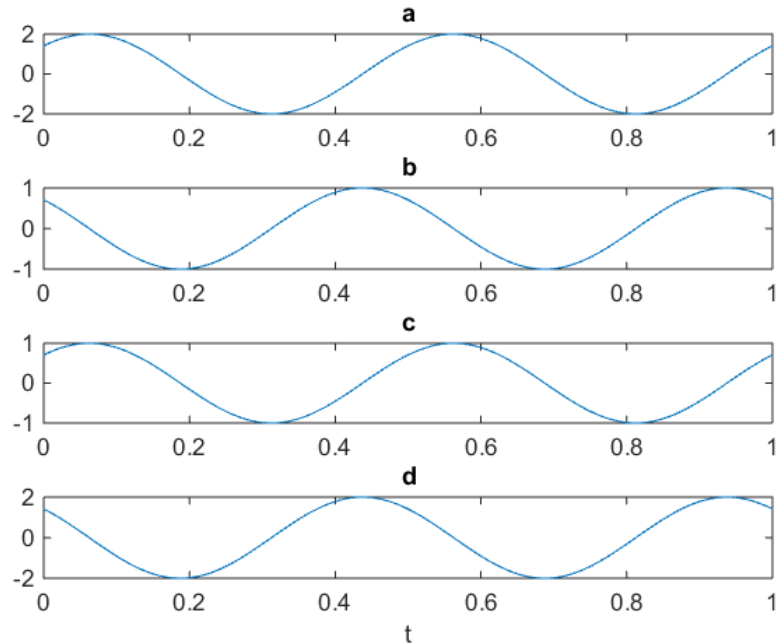
○ signal a

○ 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.
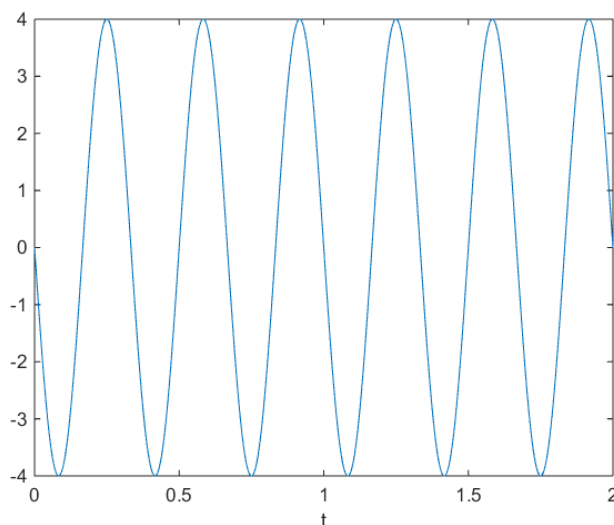
Find the value for A.

4

✔ **Answer:** 4

4

Find the value for f.

3.3

✘ **Answer:** 3

3.3

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

6.6

✘ **Answer:** 1/2

6.6

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=3Hz.

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