

Welcome Quiz
ECE 565, Spring 2009
(30 January 2009)

Write the letter (a, b, c, ...) indicating the correct answer at the left side of each statement!

1. The magnitude of $1 - j$ is (a) 0; (b) 1; (c) -1 ; (d) $\sqrt{2}$; (e) $-\sqrt{2}$; (f) 2; (g) -2 ; (h) something else.
2. The phase of $1 - j$ is (a) 0; (b) 1; (c) $\sqrt{2}$; (d) $-\sqrt{2}$; (e) $\pi/4$; (f) $-\pi/4$; (g) $\pi/2$; (h) $-\pi/2$; (i) π ; (j) $-\pi$; (k) something else.
3. For any LTI system the output is zero at all times if the input is zero at all times: (a) true; (b) false.
4. The discrete-time counterpart of the Laplace transform is the (a) Fourier transform; (b) the z -transform; (c) the fast Fourier transform; (d) the Hilbert transform; (e) something else.
5. If $x(t)$ is the input of an LTI system and $y(t)$ its output, then the output is $3y(t)$ if the input is $3x(t)$: (a) true; (b) false.
6. $\cos(11\pi)$ is equal to (a) 0; (b) $\pi/2$; (c) 1; (d) -1 ; (e) $\sqrt{2}$; (f) 2; (g) something else.
7. $\int_{-\infty}^{\infty} x(t) e^{-j\Omega t} dt$ is (a) the Laplace transform of $x(t)$; (b) the Fourier transform of $x(t)$; (c) the z -transform of $x(t)$; (d) the Fourier series of $x(t)$; (e) something else.
8. The speed of light in the vacuum is, with an accuracy of better than 1%, (a) 3×10^8 m s $^{-1}$; (b) 300,000 m s $^{-1}$; (c) 300,000 mph; (d) 3×10^6 m s $^{-1}$; (e) something else.
9. The wavelength of an electromagnetic wave with a frequency of 1 GHz in the vacuum is, with an accuracy of better than 1%, (a) 1 mm; (b) 3 mm; (c) 3 cm; (d) 30 cm; (e) 1 m; (f) 3 km; (g) something else.
10. The travel time of sound in the atmosphere over a distance of 1 mile is approximately (a) 1 s; (b) 5 s; (c) 20 s; (d) 5 min.
11. If the input of a LTI system is a sinusoid with a certain frequency, a certain amplitude, and a certain phase, then the output is (a) a sinusoid with the same phase; (b) a sinusoid with the same amplitude; (c) a sinusoid with the same frequency; (d) not necessarily a sinusoid.
12. The output of an LTI system is (a) the convolution of input and step response; (b) the inverse Fourier transform of the frequency response; (c) the convolution of impulse response and input; (d) the convolution of input and frequency response; (e) the Laplace transform of the impulse response; (f) something else.