

6) The function $x(t) = \cos(3\pi t + 45^\circ) + j \sin(\pi t)$ is

- a) not periodic
b) periodic with period 2π
c) periodic with period 2
d) periodic with period 1

7) The function $x(t) = 2\cos(t) + \cos(\sqrt{2}t + 30^\circ)$ is

- a) not periodic
b) periodic with period 1
c) periodic with period 2
d) periodic with period 2π

8) If $z = \frac{j}{1+j}$, the **magnitude** of z , $|z|$ is

- a) 1 b) $\frac{-1}{\sqrt{2}}$ c) $\frac{1}{\sqrt{2}}$ d) none of these

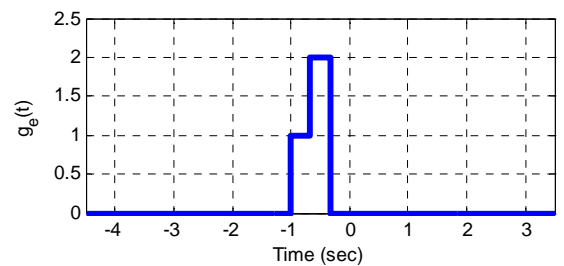
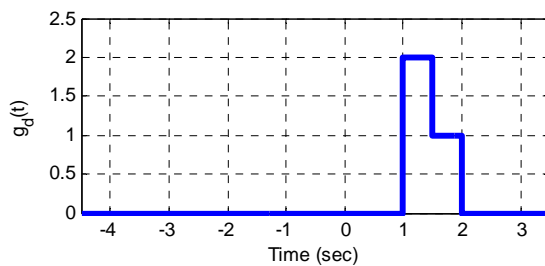
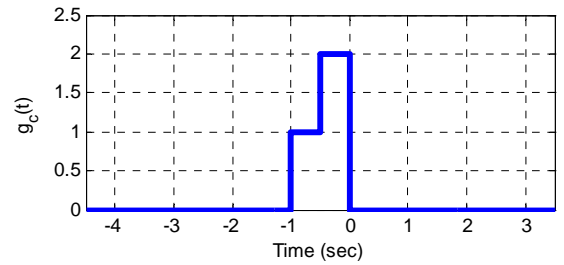
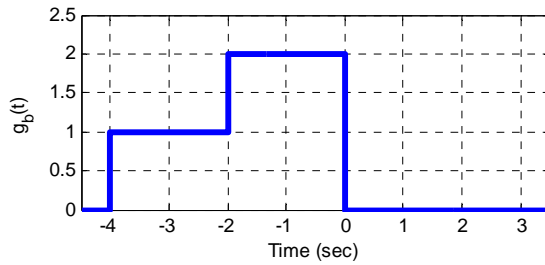
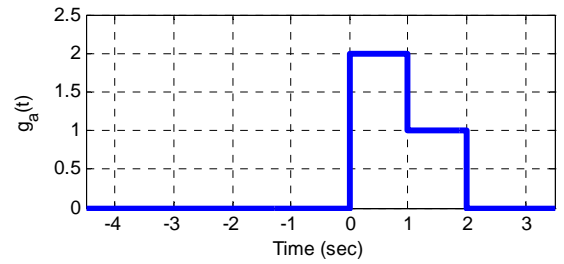
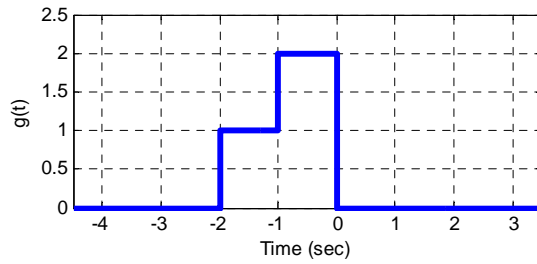
9) If $z = \frac{1-j}{1+j}$, the **phase** of z , $\angle z$, is

- a) 45° b) -45° c) 90° d) -90° e) none of these

10) If we made the variable substitution $\sigma = \frac{\lambda}{2}$ in the integral $\int_0^4 e^{\lambda x} \left(\frac{\lambda}{2}\right) d\lambda$, the new integral is

- a) $2 \int_0^2 e^{2\sigma} x(\sigma) d\sigma$ b) $\frac{1}{2} \int_0^2 e^{\frac{\sigma}{2}} x(\sigma) d\sigma$ c) $2 \int_0^4 e^{2\sigma} x(\sigma) d\sigma$ d) $\frac{1}{2} \int_0^4 e^{\frac{\sigma}{2}} x(\sigma) d\sigma$ f) none of these

In the figure below, $g(t)$ is the original signal (in the upper left corner)



11) Which signal represents $g(1+3t)$? $g_a(t)$ $g_b(t)$ $g_c(t)$ $g_d(t)$ $g_e(t)$

12) Which signal represents $g\left(\frac{t}{2}\right)$? $g_a(t)$ $g_b(t)$ $g_c(t)$ $g_d(t)$ $g_e(t)$

13) Which signal represents $g(2t)$? $g_a(t)$ $g_b(t)$ $g_c(t)$ $g_d(t)$ $g_e(t)$

14) Which signal represents $g(2(1-t))$? $g_a(t)$ $g_b(t)$ $g_c(t)$ $g_d(t)$ $g_e(t)$

15) Which signal represents $g(-t)$? $g_a(t)$ $g_b(t)$ $g_c(t)$ $g_d(t)$ $g_e(t)$

16) Which signal represents a purely **compressed** $g(t)$? $g_a(t)$ $g_b(t)$ $g_c(t)$ $g_d(t)$ $g_e(t)$

17) Which signal represents a purely **expanded** $g(t)$? $g_a(t)$ $g_b(t)$ $g_c(t)$ $g_d(t)$ $g_e(t)$