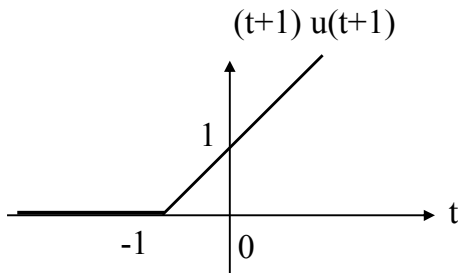


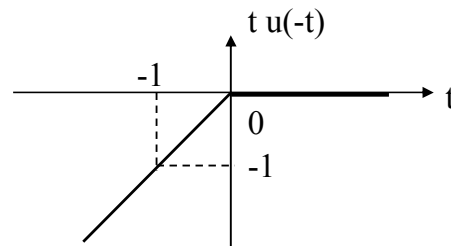
1.

(1)  $F[\delta'(t)] = j\omega$       (2)  $F[\delta(-3t)] = \frac{1}{3}F[\delta(t)] = \frac{1}{3}$       (3)  $F[\delta'(t+1)] = j\omega e^{j\omega}$   
 (4)  $F[\sin^2 3t] = F\left[\frac{1}{2}(1 - \cos 6t)\right] = \pi\delta(\omega) - \frac{\pi}{2}[\delta(\omega-6) + \delta(\omega+6)]$

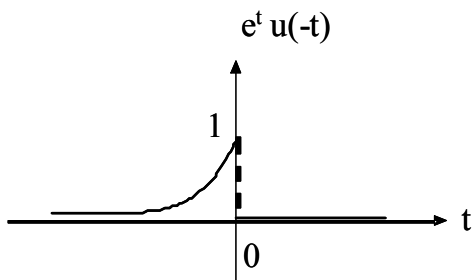
2. (1)  $(t+1)u(t+1)$



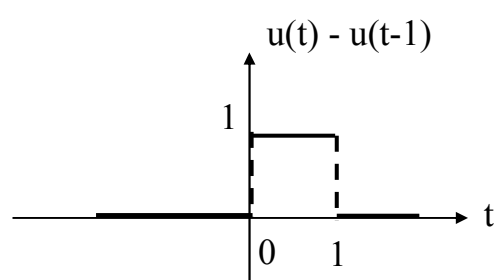
(2)  $t \cdot u(-t)$



(3)  $e^t u(-t)$



(4)  $u(t) - u(t-1)$



3.

(1)  $f_0(t) = \text{rect}(2t)$       (2)  $f(t) = \sum_{n=-\infty}^{\infty} \text{rect}(2t-n)$

(3)      (4)

$$F(\omega) = \omega_0 \sum_{n=-\infty}^{\infty} \frac{1}{2} \text{sinc}\left(\frac{\omega}{4}\right) \delta(\omega - n\omega_0)$$

$$= \pi \sum_{n=-\infty}^{\infty} \text{sinc}\left(\frac{\omega}{4}\right) \delta(\omega - 2\pi n)$$

