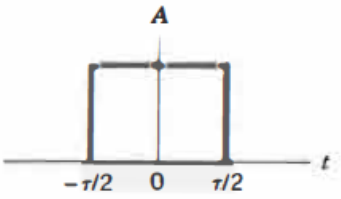
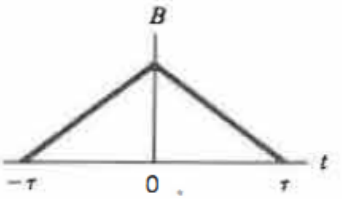
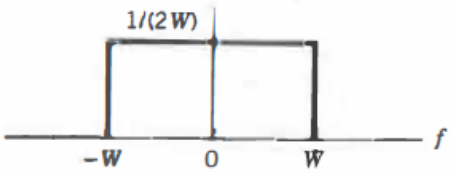
TABLE A.2 TRANSFORM PAIRS

Signal $x(t)$	Transform $X(f)$
(1) 	$A\tau \dfrac{\sin \pi f\tau}{\pi f\tau} \triangleq A\tau \operatorname{sinc} f\tau$
(2) 	$B\tau \dfrac{\sin^2 \pi f\tau}{(\pi f\tau)^2} \triangleq B\tau \operatorname{sinc}^2 f\tau$
(3) $e^{-\alpha t}u(t)$	$\dfrac{1}{\alpha + j2\pi f}$
(4) $\exp(-\lvert t\rvert/\tau)$	$\dfrac{2\tau}{1 + (2\pi f\tau)^2}$
(5) $\exp[-\pi(t/\tau)^2]$	$\tau \exp[-\pi(f\tau)^2]$
(6) $\dfrac{\sin 2\pi Wt}{2\pi Wt} \triangleq \operatorname{sinc} 2Wt$	
(7) $\exp[j(2\pi f_c t + \phi)]$	$\exp(j\phi)\delta(f - f_c)$
(8) $\cos(2\pi f_c t + \phi)$	$\frac{1}{2}\delta(f - f_c)\exp(j\phi) + \frac{1}{2}\delta(f + f_c)\exp(-j\phi)$
(9) $\delta(t - t_0)$	$\exp(-j2\pi f t_0)$
(10) $\sum_{m=-\infty}^{\infty} \delta(t - mT_s)$	$\dfrac{1}{T_s}\sum_{n=-\infty}^{\infty} \delta\left(f - \dfrac{n}{T_s}\right)$
(11) $\operatorname{sgn} t = \begin{cases} +1, & t > 0 \\ -1, & t < 0 \end{cases}$	$-\dfrac{j}{\pi f}$
(12) $u(t) = \begin{cases} 1, & t > 0 \\ 0, & t < 0 \end{cases}$	$\dfrac{1}{2}\delta(f) + \dfrac{1}{j2\pi f}$

Source: K. Sam Shanmugan, *Digital and Analog Communication Systems*, John Wiley & Sons, New York, 1979, p. 582.