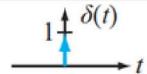
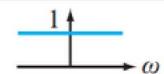
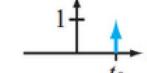
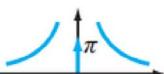
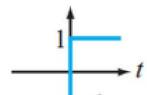
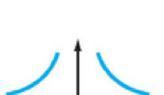
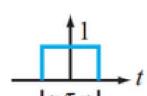
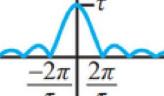
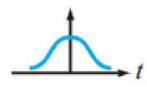
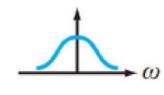
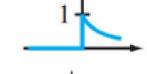
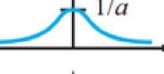
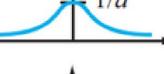
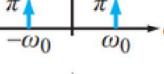
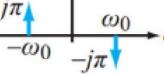
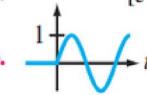
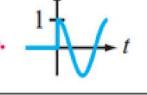


$x(t)$	$\leftrightarrow$	$\mathbf{X}(\omega) = \mathcal{F}[x(t)]$	$ \mathbf{X}(\omega) $
1. 	$\delta(t)$	$\delta(t) \leftrightarrow 1$	
1a. 	$\delta(t - t_0)$	$\delta(t - t_0) \leftrightarrow e^{-j\omega t_0}$	
2. 	1	$1 \leftrightarrow 2\pi \delta(\omega)$	
3. 	$u(t)$	$u(t) \leftrightarrow \pi \delta(\omega) + 1/j\omega$	
4. 	$\text{sgn}(t)$	$\text{sgn}(t) \leftrightarrow 2/j\omega$	
5. 	$\text{rect}(t/\tau)$	$\text{rect}(t/\tau) \leftrightarrow \tau \text{sinc}(\omega\tau/2)$	
6. 	$\frac{e^{-t^2/(2\sigma^2)}}{\sqrt{2\pi\sigma^2}}$	$\frac{e^{-t^2/(2\sigma^2)}}{\sqrt{2\pi\sigma^2}} \leftrightarrow e^{-\omega^2\sigma^2/2}$	
7a. 	$e^{-at} u(t)$	$e^{-at} u(t) \leftrightarrow 1/(a + j\omega)$	
7b. 	$e^{at} u(-t)$	$e^{at} u(-t) \leftrightarrow 1/(a - j\omega)$	
8. 	$\cos \omega_0 t$	$\cos \omega_0 t \leftrightarrow \pi [\delta(\omega - \omega_0) + \delta(\omega + \omega_0)]$	
9. 	$\sin \omega_0 t$	$\sin \omega_0 t \leftrightarrow j\pi [\delta(\omega + \omega_0) - \delta(\omega - \omega_0)]$	
10.	$e^{j\omega_0 t}$	$e^{j\omega_0 t} \leftrightarrow 2\pi \delta(\omega - \omega_0)$	
11.	$te^{-at} u(t)$	$te^{-at} u(t) \leftrightarrow 1/(a + j\omega)^2$	
12a.	$[e^{-at} \sin \omega_0 t] u(t)$	$[e^{-at} \sin \omega_0 t] u(t) \leftrightarrow \omega_0 / [(a + j\omega)^2 + \omega_0^2]$	
12b. 	$[\sin \omega_0 t] u(t)$	$[\sin \omega_0 t] u(t) \leftrightarrow (\pi/2j)[\delta(\omega - \omega_0) - \delta(\omega + \omega_0)] + [\omega_0^2 / (\omega_0^2 - \omega^2)]$	
13a.	$[e^{-at} \cos \omega_0 t] u(t)$	$[e^{-at} \cos \omega_0 t] u(t) \leftrightarrow (a + j\omega) / [(a + j\omega)^2 + \omega_0^2]$	
13b. 	$[\cos \omega_0 t] u(t)$	$[\cos \omega_0 t] u(t) \leftrightarrow (\pi/2)[\delta(\omega - \omega_0) + \delta(\omega + \omega_0)] + [j\omega / (\omega_0^2 - \omega^2)]$	

Note: formulas assume  $e^{-at}$  exponent coefficient  $a \geq 0$ .

14. 
$$\frac{B \text{sinc}(Bt)}{\pi} \leftrightarrow \text{rect}\left(\frac{\omega}{2B}\right)$$

15. 
$$\text{tri}(t/\tau) \leftrightarrow \tau \text{sinc}^2\left(\frac{\omega\tau}{2}\right)$$

16. 
$$e^{-a|t|} \leftrightarrow \frac{2a}{(a^2 + \omega^2)}$$

Assume  $a > 0$