

Fourier Transform Pairs

| Pair | $x(t)$ | $X(\omega)$ | Notes |
|------|--|---|--------------|
| 1 | $\alpha\delta(t)$ | α | |
| 2 | $\alpha/2\pi$ | $\alpha\delta(\omega)$ | |
| 3 | $u(t)$ | $\pi\delta(\omega) + (1/j\omega)$ | |
| 4 | $\frac{1}{2}\delta(t) - \frac{1}{j2\pi t}$ | $u(\omega)$ | |
| 5 | $\text{rect}(t/\tau)$ | $\tau \text{Sa}(\omega\tau/2)$ | $\tau > 0$ |
| 6 | $(W/\pi)\text{Sa}(Wt)$ | $\text{rect}(\omega/2W)$ | $W > 0$ |
| 7 | $\text{tri}(t/\tau)$ | $\tau \text{Sa}^2(\omega\tau/2)$ | $\tau > 0$ |
| 8 | $(W/\pi)\text{Sa}^2(Wt)$ | $\text{tri}(\omega/2W)$ | $W > 0$ |
| 9 | $e^{j\omega_0 t}$ | $2\pi\delta(\omega - \omega_0)$ | |
| 10 | $\delta(t - \tau)$ | $e^{-j\omega\tau}$ | |
| 11 | $\cos(\omega_0 t)$ | $\pi[\delta(\omega - \omega_0) + \delta(\omega + \omega_0)]$ | |
| 12 | $\sin(\omega_0 t)$ | $-j\pi[\delta(\omega - \omega_0) - \delta(\omega + \omega_0)]$ | |
| 13 | $u(t) \cos(\omega_0 t)$ | $\frac{\pi}{2}[\delta(\omega - \omega_0) + \delta(\omega + \omega_0)] + \frac{j\omega}{\omega_0^2 - \omega^2}$ | |
| 14 | $u(t) \sin(\omega_0 t)$ | $-j\frac{\pi}{2}[\delta(\omega - \omega_0) - \delta(\omega + \omega_0)] + \frac{\omega_0}{\omega_0^2 - \omega^2}$ | |
| 15 | $u(t)e^{-\alpha t}$ | $\frac{1}{\alpha + j\omega}$ | $\alpha > 0$ |
| 16 | $u(t)te^{-\alpha t}$ | $\frac{1}{(\alpha + j\omega)^2}$ | $\alpha > 0$ |
| 17 | $u(t)t^2 e^{-\alpha t}$ | $\frac{2}{(\alpha + j\omega)^3}$ | $\alpha > 0$ |
| 18 | $u(t)t^3 e^{-\alpha t}$ | $\frac{6}{(\alpha + j\omega)^4}$ | $\alpha > 0$ |

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Cartagena99

The logo for Cartagena99 features the text 'Cartagena99' in a stylized, teal-colored font. The '99' is significantly larger and more prominent than the rest of the text. The logo is set against a light blue, arrow-shaped background that points to the right. Below the text, there is a horizontal orange gradient bar.

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