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① c) $x = u(t+6) - u(t+2) + 3(u(t+2) - u(t-2)) - (u(t-2) - u(t+4))$

$$X(jwt) = \int_{-6}^{-2} e^{-jwt}.dt + 3\int_{-2}^{2} e^{-jwt}.dt - \int_{2}^{4} e^{-jwt}.dt$$

$$X(jw) = 4e^{j4w}\frac{sim(w)cos(w)}{w} + \frac{12 sim(w)cos(w)}{w} - \frac{2e^{-j3w} sim(w)}{w}$$

② c) $x = 2sim(2\pi t)(u(t+2) - u(t-2))$

$$X(jwt) = 2\int_{-2}^{2} sim(2\pi t).e^{-jwt}.dt$$

$$X(jwt) = 2\int_{-2}^{2}\left(\frac{e^{j2\pi t} - e^{-j2\pi t}}{j2}\right)e^{-jwt}.dt$$

$$X(jwt) = \int_{-2}^{2}\left(\frac{e^{j2\pi t - jwt} - e^{-j2\pi t - jwt}}{j}\right).dt$$

$$X(jwt) = \int_{-2}^{2}\frac{e^{j2\pi t - jwt}}{j}.dt - \int_{-2}^{2}\frac{e^{-j2\pi t - jwt}}{j}.dt$$

$$X(jw) = \frac{j8\pi\, sim(2w)}{-w^2 + 4\pi^2}$$ → Calculado via int();

③ c) $X(j\omega t) = \int_{-4}^{0} \left(\frac{e^{j2\pi t} - e^{-j2\pi t}}{j} \right) \cdot e^{-j\omega t} \cdot dt$

$$X(j\omega t) = \int_{-4}^{0} \left(\frac{e^{j2\pi t - j\omega t} - e^{-j2\pi t - j\omega t}}{j} \right) \cdot dt$$

$$X(j\omega t) = \int_{-4}^{0} \frac{e^{j2\pi t - j\omega t}}{j} \cdot dt - \int_{-4}^{0} \frac{e^{-j2\pi t - j\omega t}}{j} \cdot dt$$

$X(j\omega) = \frac{4\pi \cdot e^{(j4\cdot\omega)} - 1}{-\omega^2 + 4\pi^2}$ → Calculado via int();