Solution for ECE 315 Test 8 F04

$$5\,\mathrm{rect}(2t-1)=5\,\mathrm{rect}\left(2\left(t-\frac{1}{2}\right)\right)\overset{\mathcal{F}}{\longleftrightarrow}2.5\,\mathrm{sinc}(f/2)e^{-j\pi f}$$

$$5\,\mathrm{rect}\left((t/2)-1\right)=5\,\mathrm{rect}\left(\frac{t-2}{2}\right)\overset{\mathcal{F}}{\longleftrightarrow}10\,\mathrm{sinc}(2f)e^{-j4\pi f}$$

$$5\,\mathrm{rect}\left(2(t-1)\right)\overset{\mathcal{F}}{\longleftrightarrow}2.5\,\mathrm{sinc}(f/2)e^{-j2\pi f}$$

$$5\,\mathrm{rect}\left((t-1)/2\right)\overset{\mathcal{F}}{\longleftrightarrow}10\,\mathrm{sinc}(2f)e^{-j2\pi f}$$

$$5\,\mathrm{sinc}(2t-1)=5\,\mathrm{sinc}\left(2(t-1/2)\right)\overset{\mathcal{F}}{\longleftrightarrow}2.5\,\mathrm{rect}(f/2)e^{-j\pi f}$$

$$5\,\mathrm{sinc}\left((t/2)-1\right)=5\,\mathrm{sinc}\left(\frac{t-2}{2}\right)\overset{\mathcal{F}}{\longleftrightarrow}10\,\mathrm{rect}(2f)e^{-j4\pi f}$$

$$5\,\mathrm{sinc}\left(2(t-1)\right)\overset{\mathcal{F}}{\longleftrightarrow}2.5\,\mathrm{rect}(f/2)e^{-j2\pi f}$$

$$5\,\mathrm{sinc}\left((t-1)/2\right)\overset{\mathcal{F}}{\longleftrightarrow}10\,\mathrm{rect}(2f)e^{-j2\pi f}$$

$$5\sin\left(3t-(\pi/4)\right)=5\sin\left(3\left(t-\frac{\pi}{12}\right)\right)\overset{\mathcal{F}}{\longleftrightarrow}j5\pi\left[\delta(\omega+3)-\delta(\omega-3)\right]e^{-j\pi\omega/12}$$

$$5\sin\left(3(t+1)\right)\overset{\mathcal{F}}{\longleftrightarrow}j5\pi\left[\delta(\omega+3)-\delta(\omega-3)\right]e^{+j\omega}$$

$$5\sin\left((t/3)-(\pi/4)\right)=5\sin\left(\frac{t-(3\pi/4)}{3}\right)\overset{\mathcal{F}}{\longleftrightarrow}j5\pi\left[\delta\left(\omega+(1/3)\right)-\delta\left(\omega-(1/3)\right)\right]e^{-j3\pi\omega/4}$$

$$5\sin\left((t+1)/3\right)\overset{\mathcal{F}}{\longleftrightarrow}j5\pi\left[\delta\left(\omega+(1/3)\right)-\delta\left(\omega-(1/3)\right)\right]e^{+j\omega}$$