Example

Example

Determine the signal $x(t)$ that has the following spectrum:

$$X(\omega) = \sum_{k=-\infty}^{\infty} \text{rect}\left(\frac{\omega - k4\pi}{2\pi}\right).$$

Example (1)

Example

Show that

$$\frac{1}{a}\operatorname{rect}\left(\frac{t}{a}\right) * \operatorname{rect}\left(\frac{t}{a}\right) = \operatorname{tri}\left(\frac{t}{a}\right)$$

where $a > 0$.

Hint: You may use the fact that $\operatorname{rect}(t) * \operatorname{rect}(t) = \operatorname{tri}(t)$