Exercise 1. A continuous-time signal $x(t)$ has the following spectrum

$$X(j\omega) = \begin{cases} A & |\omega| > 1 \\ 0 & |\omega| < 1 \end{cases}$$

where $A$ is a constant positive real value.

A) Evaluate $x(t)$ [pt. 15].

B) Evaluate the energy of signal $x(t)$ [pt. 10].

Exercise 2. A continuous-time signal $x(t)$ has the following spectrum

$$X(j\omega) = \frac{d}{d\omega} \sin(\omega A)$$

where $A$ is a constant positive real value.

A) Evaluate $x(t)$ [pt. 15].

Exercise 3. A continuous-time signal $x(t)$ has the following spectrum

$$X(j\omega) = \frac{e^{-j\omega t_0}}{j(\omega + \omega_0)} + \pi \delta(\omega + \omega_0) e^{+j\omega t_0}$$

where $\omega_0$ and $t_0$ are constant positive real values.

A) Evaluate $x(t)$ [pt. 15].

Exercise 4. A continuous-time signal $x(t)$ has the following spectrum

$$X(j\omega) = \frac{\omega_0}{(j\omega - j\omega_0 + \omega_0)^2}$$

where $\omega_0$ is a constant positive real value.

A) Evaluate $x(t)$ [pt. 15].

Exercise 5. A continuous-time signal $x(t)$ has the following spectrum

$$X(j\omega) = \frac{1}{j\omega - j\omega_0 + \omega_0}$$

where $\omega_0$ is a constant real value.
A) Evaluate $x(t)$ [pt. 15].

**Exercise 6.** A continuous-time signal $x(t)$ has the following spectrum

$$X(j\omega) = \frac{e^{j\omega t_0}}{j(\omega - \omega_0)} + \pi \delta(\omega - \omega_0) e^{j\omega t_0}$$

where $\omega_0$ and $t_0$ are constant positive real values.

A) Evaluate $x(t)$ [pt. 15].