

EE411 Homework 3

1. Find the Fourier transform for each of the signals

(a) $g(t) = e^{-2|t-3|}$

(b) $x(t) = 5 \cos 2\pi f_0 t$

(c) $x(t) = \frac{6}{1 + jt}$

2. Find the Fourier transform of the signal shown in Fig. 1.

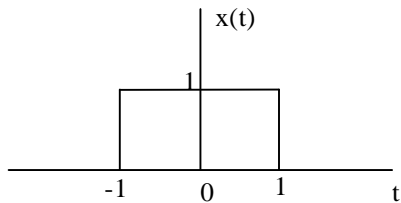


Fig. 1

3. Find the inverse Fourier transform of the spectrum

$$G(f) = \delta(4\pi f) - \delta(f - 2)$$

4. The Fourier transform of the triangular pulse $g(t)$ in Fig.3 is given as $G(f)$, use this information, and the time-shifting and time-scaling properties, to find the Fourier transforms of the signals shown in Fig. 4 and Fig. 5.

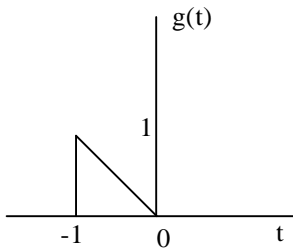


Fig. 3

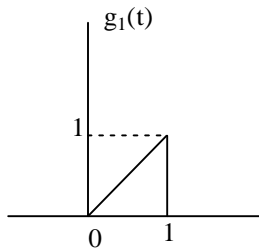


Fig. 4

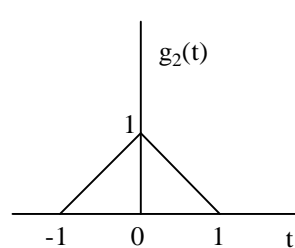


Fig. 5