EE3210 Signals and Systems

Tutorial 9

Problem 1: Compute the Fourier transform of the discrete-time signal $x[n] = 4^n u[-n]$.

Problem 2: Given that $x(t)$ has the Fourier transform $X(\omega)$, express the Fourier transform of each of the following signals in terms of $X(\omega)$:

(a) $x(1-t) + x(-1-t)$

(b) $x(3t-6)$

Problem 3: Determine the total energy, defined as

$$\int_{-\infty}^{+\infty} |x(t)|^2 dt$$

of the continuous-time signal $x(t) = \text{sinc}(t)$.