Quiz 17 EE3900

1 Definitions

1. The exponential Fourier Series representation of a continuous-time periodic signal $x(t)$ is defined as

$$x(t) = \sum_{k=-\infty}^{\infty} a_k e^{\mathrm{j}k\omega_0 t} \tag{1.1}$$

where ω_0 is the fundamental angular frequency of $x(t)$ and the coefficients of the series are a_k.

2 Problems

The following information is given about $x(t)$ and a_k.

1. $x(t)$ is real and even, with fundamental period 6.
2. The average value of $x(t)$ is 2.
3. $a_k = \begin{cases} k, & 1 \le k \le 3 \\ 0, & k > 3 \end{cases}$

The average power of the signal $x(t)$ (*rounded off to one decimal place*) is _____.