

EECS20n, Quiz 4, 4/14/00

The quiz will take 15 minutes. Do your calculations on the sheet. There are two problems, **so be sure to check the back.**

Please print your name here:

Last Name: _____ First: _____ Lab time: _____

1. Consider the periodic discrete-time signal given by

$$\forall n \in \text{Ints}, \quad x(n) = 2 + \sin(\pi n/2) + \cos(\pi n).$$

Find the fundamental frequency ω_0 and the Fourier series coefficients X_k in the Fourier series expansion,

$$x(n) = \sum_{k=-\infty}^{\infty} X_k e^{i\omega_0 kn}.$$

Give the units of the fundamental frequency.

2. Consider a discrete-time LTI system with frequency response

$$H(\omega) = \cos(\omega).$$

Assume the input is x given in part 1. Find the output y .