

## Quiz 1

September 4, 2006

1. Consider the following two signals and determine whether they are periodic. If yes, determine their fundamental period.

(a)  $x[n] = \cos(0.01\pi n)$

(b)  $x[n] = \sin(3n)$

2. Let  $x(t) = |t|$ .

Sketch  $x(-t/2 + 2)$  for  $-10 \leq t \leq 10$ .

3. Determine the magnitude of the signal

$$x(t) = e^{j3t} + e^{j2t},$$

i.e., determine  $A(t)$  when  $x(t)$  is written in polar form  $x(t) = A(t)e^{j\phi(t)}$ ,  $A(t) \in \mathbb{R}_0^+$ ,  $\phi(t) \in \mathbb{R}$ .