

Homework

1. What is the difference between quantization and sampling? What are the potential distortions produced by these operations?

2. What are properties of the spectrum of the following signals

- (a) Continuous periodic signal
- (b) Discrete non-periodic signal.

3. You are given a mixture of two signals and the goal is to separate the mixture. The composite signal begins at $t=0$ and has a duration of 10s. What types of windows would you choose for the following cases.

- (a) two sine waves at frequency 500 Hz and 520 Hz.
 - (b) two narrow square pulses of width 50ms occurring at $t=1$ s and $t=1.1$ s.
- Justify your choice in a few words.