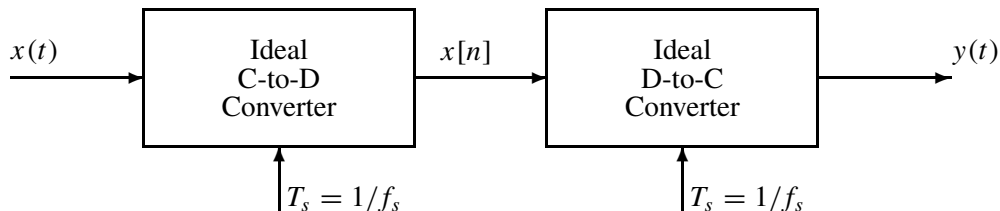


PROBLEM:

Suppose that the output of the D-to-C converter in the system above is found to be

$$y(t) = 4 + 5 \cos(2\pi(200)t - \pi/4)$$

when the sampling rate is $f_s = 1/T_s = 500$ samples/second.

- (a) Give an equation for $x[n]$ in terms of cosine functions. **Write your answer on the line below.**

Answer: $x[n] =$ _____

- (b) Determine two *different* input signals $x(t) = x_1(t)$ and $x(t) = x_2(t)$ that could have produced the given output of the D-to-C converter. **All of the frequencies in your answers must be positive and less than 500 Hz. Write your answers for both inputs on the lines below.**

Answer: $x_1(t) =$ _____

Answer: $x_2(t) =$ _____