PROBLEM:

Suppose that a discrete-time signal x[n] is given by the formula

 $x[n] = 10\cos(0.25\pi n + \pi/2)$

and that it was obtained by sampling a continuous-time signal at a sampling rate of $f_s = 1000$ samples/second.

(a) Determine two *different* continuous-time signals $x_1(t)$ and $x_2(t)$ whose samples are equal to x[n]; i.e., find $x_1(t)$ and $x_2(t)$ such that $x[n] = x_1(nT) = x_2(nT)$ if T = .001. Both of these signals should have a frequency less than 1000 Hz. Give a formula for each signal.

(b) Determine the amplitude and phase for both of the signals found in part (a).