PROBLEM:

Let $x(t) = 13\sin(22\pi t)$. In each of the following the discrete-time signal $x[n]$ is obtained by sampling $x(t)$ at a rate f_s; and the resultant $x[n]$ can be written:

$$x[n] = A\cos(\hat{\omega}_0 n + \phi)$$

So for each part below, determine the values of A, ϕ and ω_0. In addition, state whether or not the signal has been oversampled or undersampled.

(a) Let the sampling frequency be $f_s = 10$ samples/sec.

(b) Let the sampling frequency be $f_s = 25$ samples/sec.

(c) Let the sampling frequency be $f_s = 15$ samples/sec.