PROBLEM:

For the same system as in the previous problem:

$$\hat{H}(z) = (1 - z^{-1})(1 + z^{-2})(1 + z^{-1})$$

(a) This system can "block" certain input signals. For which input frequencies $\omega_\circ$, is the response to $x[n] = \cos(\omega_\circ n)$ equal to zero?

(b) When the input to the system is $x[n] = \cos(\pi n/3)$ determine the output signal $y[n]$ in the form:

$$A \cos(\omega_\circ n + \phi)$$

Give numerical values for the constants A, $\omega_\circ$ and ϕ.