PROBLEM:

Suppose that a system is defined by the following operator

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

(a) Write the time-domain description of this system—in the form of a difference equation.

(b) Write the formula for the frequency response of the system.

(c) Derive simple formulas for the magnitude response versus ω, and the phase response versus ω. These formulas must contain no complex terms and no square roots.