PROBLEM:

Let $x[n]$ be the complex exponential

$$x[n] = 11e^{j(0.3\pi n + 0.5\pi)}$$

If we define a new signal $y[n]$ to be the output of the difference equation:

$$y[n] = 2x[n] + 4x[n-1] + 2x[n-2]$$

it is possible to express $y[n]$ in the form

$$y[n] = Ae^{j(\omega_0 n + \phi)}$$

Determine the numerical values of A, ϕ and ω_0.