Problem 9.13

Given system function, $H(z) = 1 - 5z^{-2} + 4z^{-4}$. Input is $x[n] = 100 - 70\delta[n] + 30\cos(0.5\pi n + \frac{\pi}{4})$

$H(e^{j\hat{\omega}}) = 1 - 5e^{-j\hat{\omega}2} + 4e^{-j\hat{\omega}4}$

Then, $y[n] = 100|H(e^{j0})| - 70h[n] + 30|H(e^{j0.5\pi})|\cos(0.5\pi n + \frac{\pi}{4} + \angle H(e^{j0.5\pi}))$

Thus, $y[n] = 100(0) - 70\delta[n] - 350\delta[n-2] - 280\delta[n-4] + 30(10)\cos(0.5\pi n + \frac{\pi}{4})$