Concept Question 8-2: Where are the poles and zeros of a discrete-time notch filter located?

A notch filter designed to reject discrete-time frequency Ω_0 has zeros at $\mathbf{z} = e^{j\Omega_0}$ and poles at $\mathbf{z} = ae^{j\Omega_0}$, where $0 < a < 1$ and a is close to 1.

This rejects the discrete-time frequency Ω_0 but at other frequencies the pole roughly cancels the zero.