Special Problem II.A-43

A **lossless filter** has a complex transfer function of:

$$S_{21}(\omega) = \frac{2 + j\,2\omega}{j\omega^2 - 3}$$

Say a 1 mW signal of frequency $\omega = 1$ is **incident** on the input this filter.

A. Determine the **power** of the wave **reflected** from the filter input.

B. Express the input impedance of the filter at $\omega = 1$ in terms of **return loss**.