

## Special Problem II.A-53

The scattering parameter  $S_{21}$  for a certain **low-pass** microwave filter has the form:

$$S_{21}(\omega) = \frac{A}{100 + j \frac{\omega}{10^6}}$$

Where  $A$  is some **real, positive** value.

The **cutoff frequency** for this filter is  $\omega_c = 10^8$  rad/sec.

Determine the value of  $A$ .