Special Problem 5.5-2

Consider the following lossless, reciprocal, two-port device, consisting of a length of transmission line with characteristic impedance $1.5\ Z_0$ and length $\ell = \lambda/8$.

1. Use the theory of small reflections to determine an approximate value of $S_{11}$ for this two-port device (you must use the theory of small reflections to determine $S_{11}$ — you will receive no credit if you use any other method)!

2. Using your solution for $S_{11}$, determine $S_{22}$, $|S_{21}|$, and $|S_{12}|$. 