Selected Answers to HW #4

Include explanatory text and intermediate calculations in your solutions. You will not receive credit for merely repeating an answer given here without supporting work.

If an answer is not provided below, it is either because the solution is trivial or because disclosure of the answer would give away too much of the solution.

If you suspect that an answer below is incorrect, please let me know as soon as possible.

1.   [proof]

2.   [The values that you obtain for S_{11} and S_{22} might differ from those given below depending on the solution method that you used and how you applied rounding. You may also give values of zero for both parameters if you explain why that should be so. Regardless of the solution method, the magnitudes of S_{11} and S_{22} should be very small.]

$S_{11} = 0.0020\angle 109°$

$S_{12} = 1.0\angle -160°$

$S_{21} = 1.0\angle -160°$

$S_{22} = 0.0020\angle 109°$

[magnitudes in dB not given]

3. $S_{11} = 0.14\angle 111°$ (magnitude of −17 dB)

$S_{12} = 0.99\angle -159°$ (magnitude of −0.087 dB)

$S_{21} = 0.99\angle -159°$ (magnitude of −0.087 dB)

$S_{22} = 0.14\angle 111°$ (magnitude of −17 dB)