HW1: Determine the input impedance of the network given below.

\[ Z = ? \]

HW 2: In a laboratory based experiment of unknown impedance measurement using air-filled waveguide, the VSWR is measured as 1.5. The minima position with unknown load shifts by an amount of 4.5 cm towards generator from the first minima measured with short circuited load. If the operating frequency is 1 GHz, then determine the value of unknown load. Assume the characteristics impedance of the waveguide is 100\,\Omega.

HW 3: Determine the input impedance and admittance of the transmission line given in figure below.

\[ Z_4 = 50\,\Omega \]
\[ Z_2 = 25 + j100\,\Omega \]
\[ l = 0.134\lambda \]