

Problem Set - 4
Load Flow

1. Use Gauss-Seidal method to find the solution of the following equations

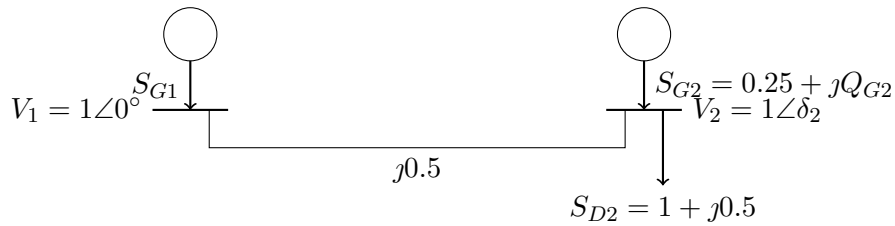
$$x_1 + x_1x_2 = 10$$

$$x_1 + x_2 = 6$$

with $x_1^0 = 0$ and $x_2^0 = 0$. Continue the iterations until $|\Delta x_1^k|$ and $|\Delta x_2^k|$ are less than 0.001.
(**Ans:** $x_1 = 2$; $x_2 = 4$, Iterations = 15)

2. Use Newton-Raphson method to find the solution of the above problem with the same initial estimate and the stopping criterion. (**Ans:** $x_1 = 5$; $x_2 = 1$, Iterations = 8)

3. Find S_{G1} , Q_2 and δ_2 using G-S method. Perform two iterations. (**Ans:** $S_{G1} = 0.75 + j0.1459$)



4. Find S_{G1} using N-R Method. Do two iterations. (**Ans:** $S_{G1} = 1 + j0.9051$)

