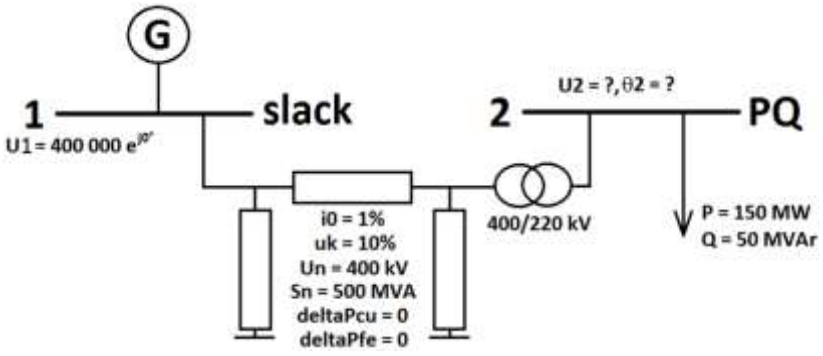
Example: Solve first 2 iterations of the G-S method for the given network.



Calculation:

$$\overline{Z}_k = jX_k = j\frac{u_k}{100}\frac{U_n^2}{S_n} = j32\,\Omega$$

$$\overline{Y}_0 = -jB_m = -j\frac{i_0}{100}\frac{S_n}{U_n^2} = -j3.125\times10^{-5}\ S$$

$$\overline{Y}_{12} = \frac{1}{\overline{Z}_k} = -j0.03125\,S$$

$$\overline{Y}_{120} = \frac{\overline{Y}_0}{2} = -j1.5625\times10^{-5}\ S$$

$$\overline{p} = \frac{400}{220}\angle 0°$$

Admittance matrix:

$$\underline{\overline{A}} = \begin{bmatrix} \overline{Y}_{12}+\overline{Y}_{120} & -\overline{p}\overline{Y}_{12} \\ -\overline{p}^{*}\overline{Y}_{12} & p^2\left(\overline{Y}_{12}+\overline{Y}_{120}\right) \end{bmatrix} = \begin{bmatrix} -j0.031266 & j0.056818 \\ j0.056818 & -j0.103357 \end{bmatrix}$$

Iteration algorithm:

$$\overline{U}_2^{(p+1)} = \frac{1}{\overline{A}_{22}}\left[\frac{(-150+j50)\times10^6}{\overline{U}_2^{(p)*}} - \overline{A}_{21}\times 400000\right]$$

it	U_2	θ_2	deviation
0	220000	0°	---
1	217791.3012	-1°44'	0.03025
2	217568.1825	-1°44'	0.0010245