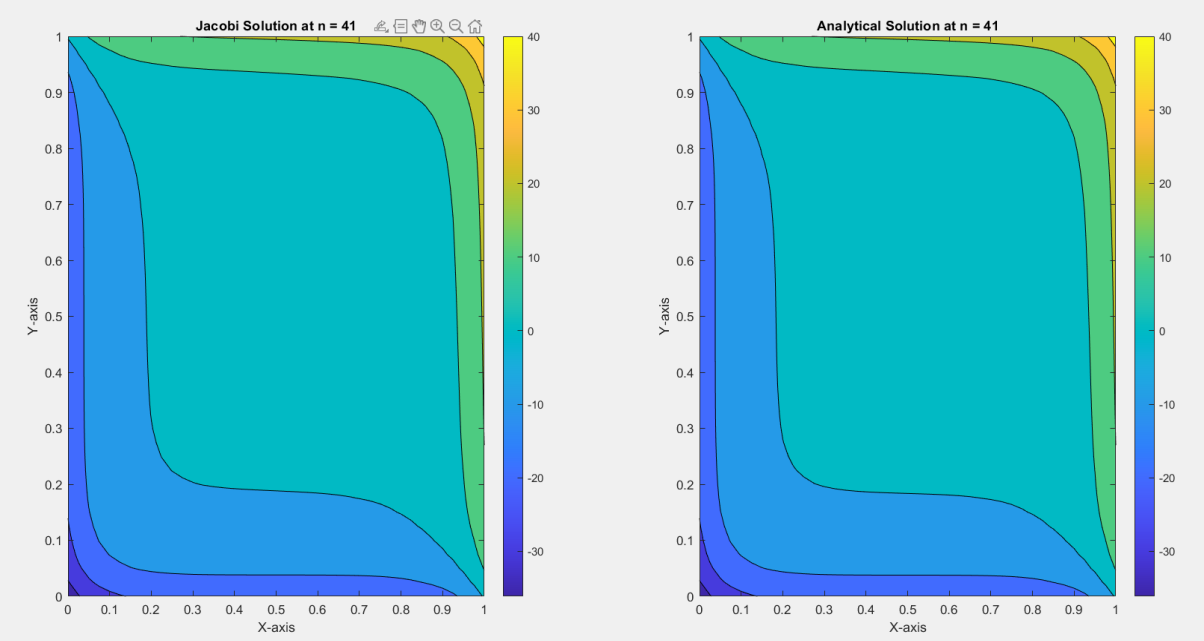
ASSIGNMENT-2

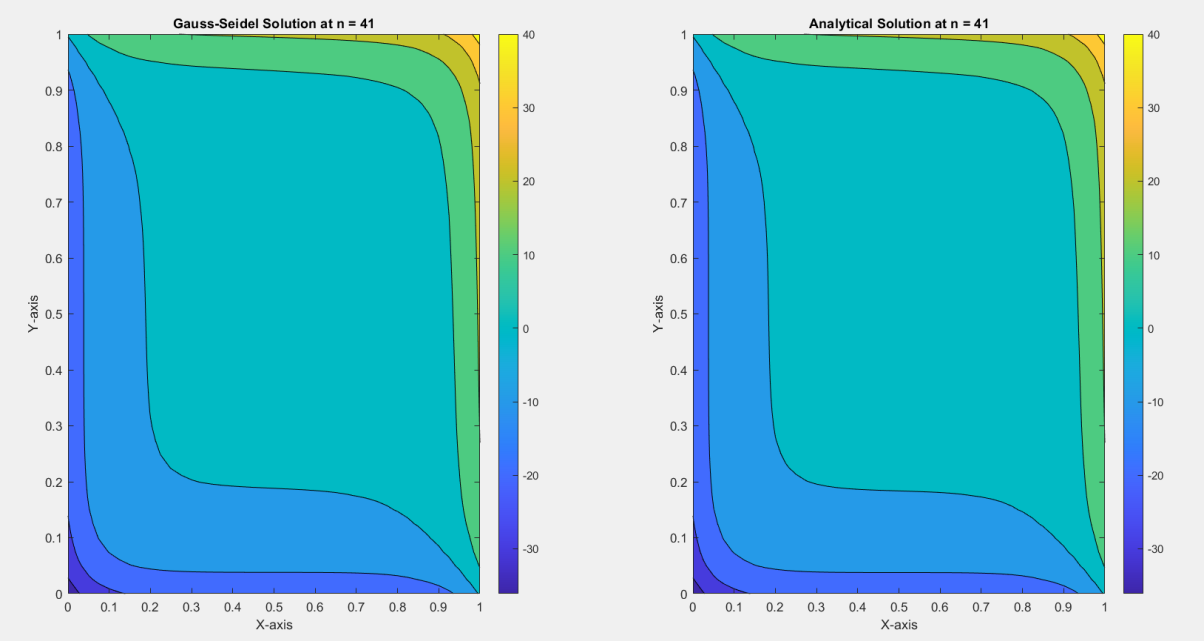
N = 41

1. JACOBI ITERATIONS



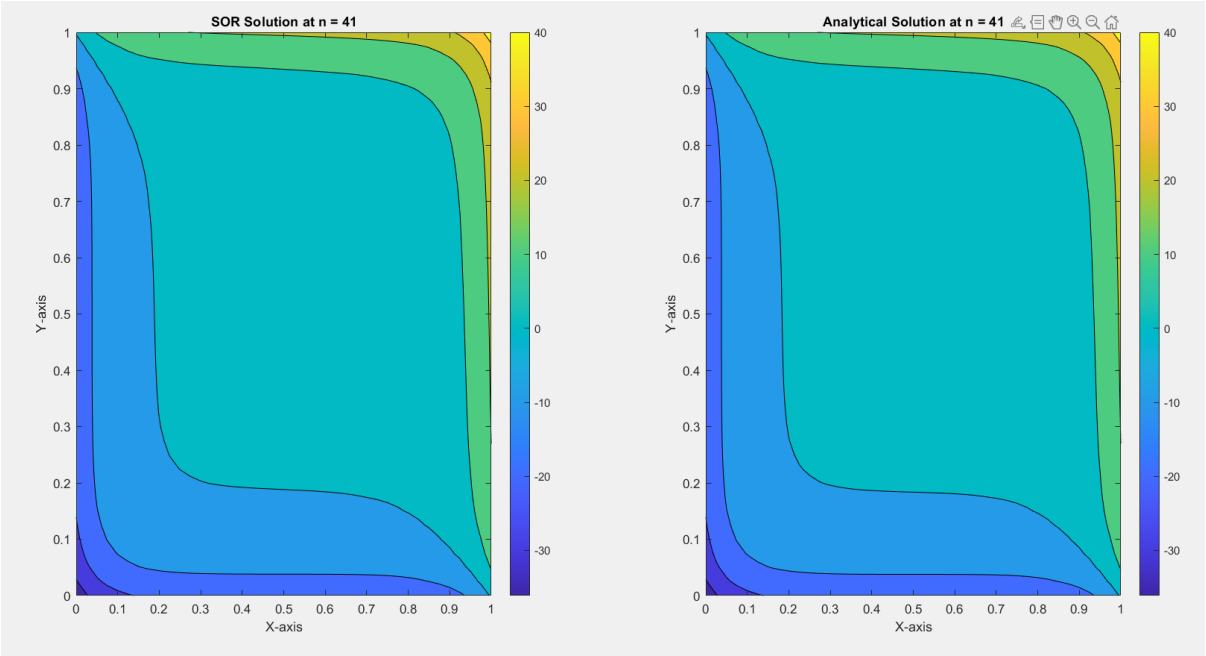
Iterations = 5037

2. GAUSS SEIDEL



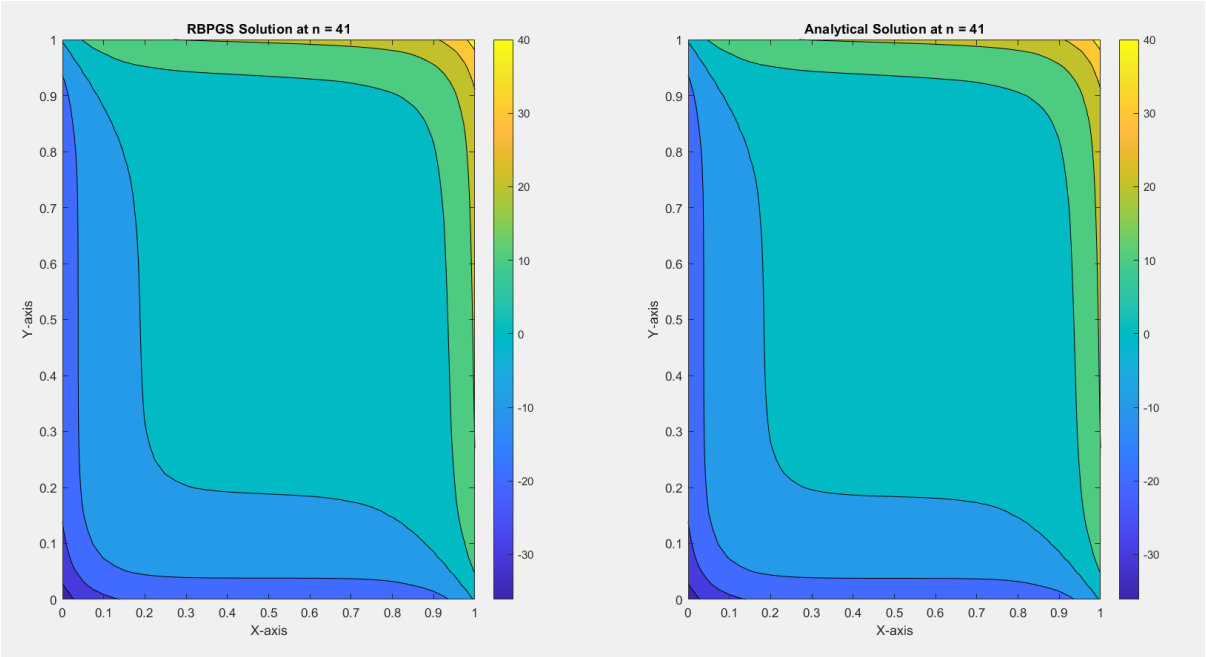
Iterations = 2665

3. SUCCESSIVE OVER-RELAXATION



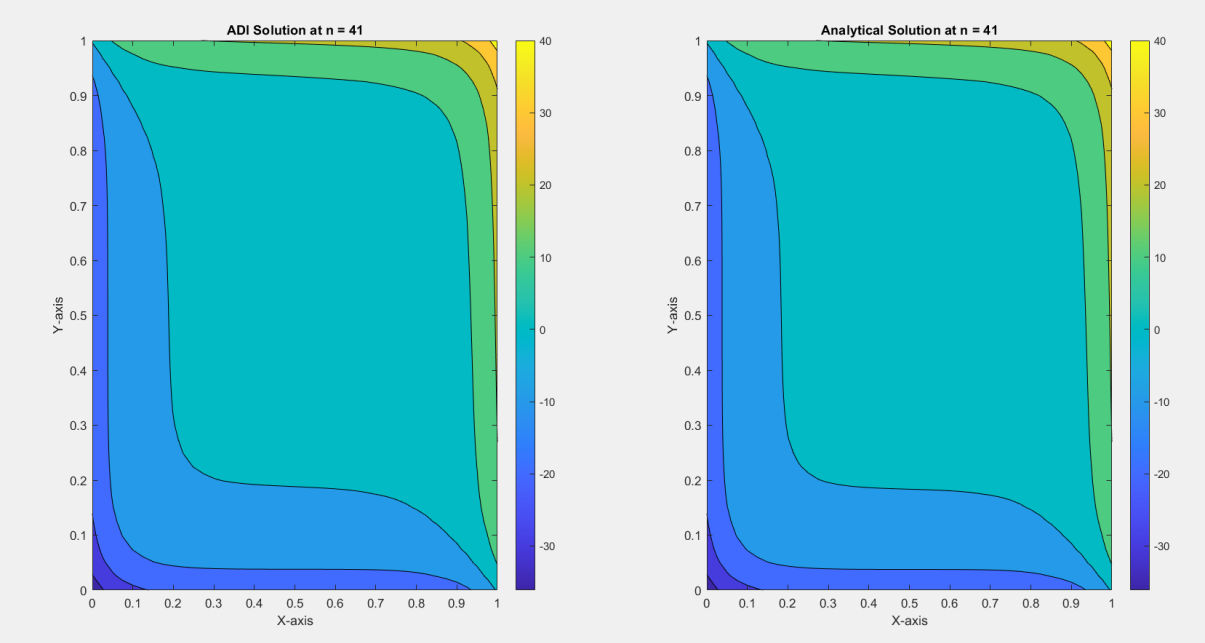
Iterations = 416

4. RED-BLACK POINT GAUSS SEIDEL



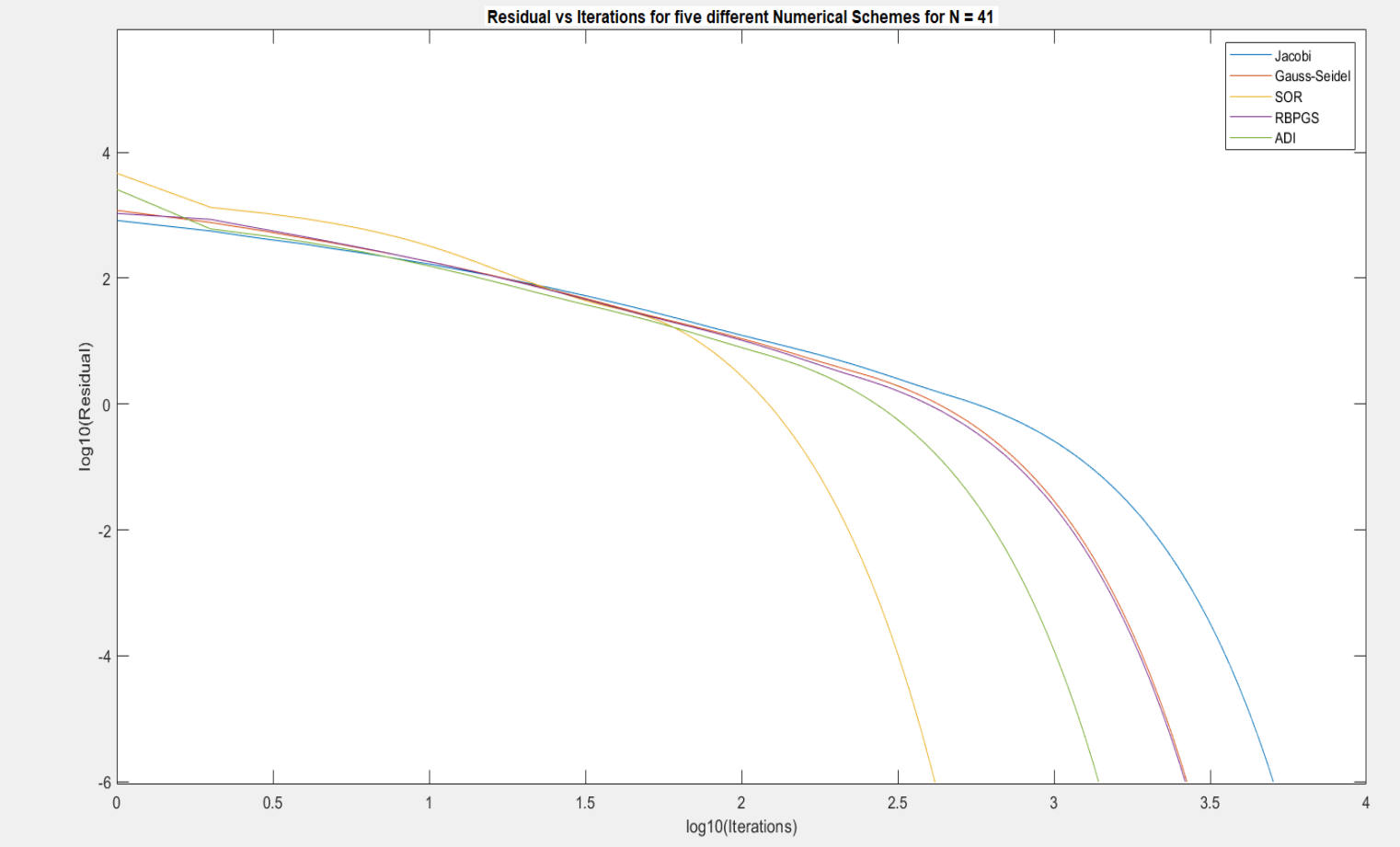
Iterations = 2631

5. ALTERNATING DIRECTION IMPLICIT



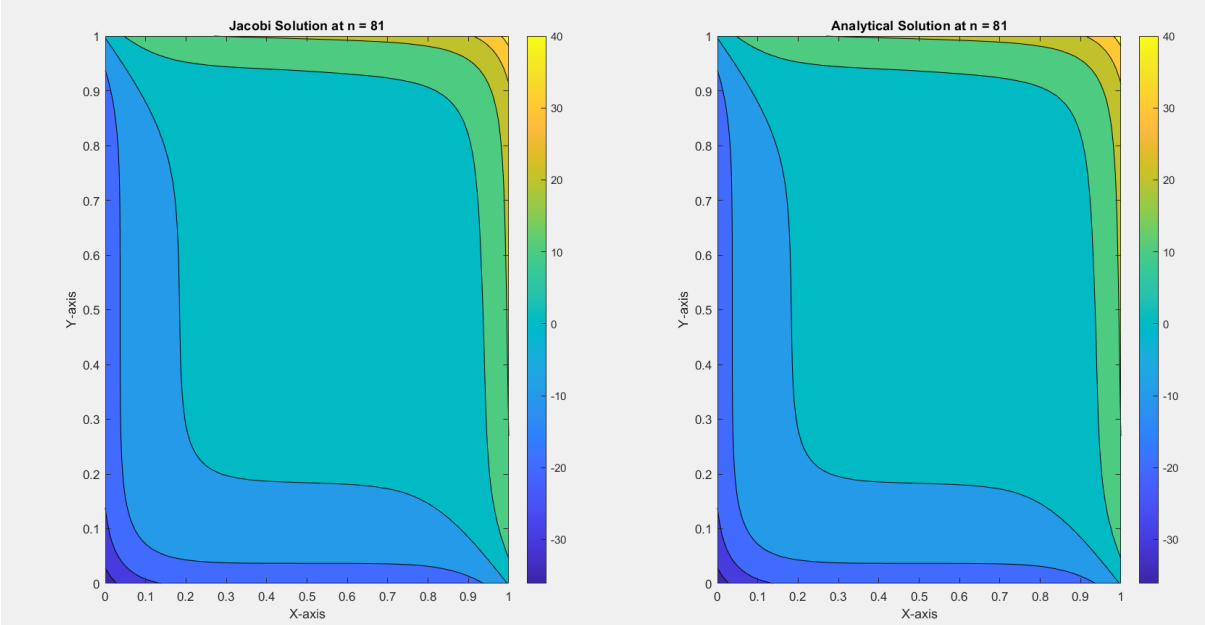
Iterations = 1390

6. **Comparison between different schemes for N = 41**



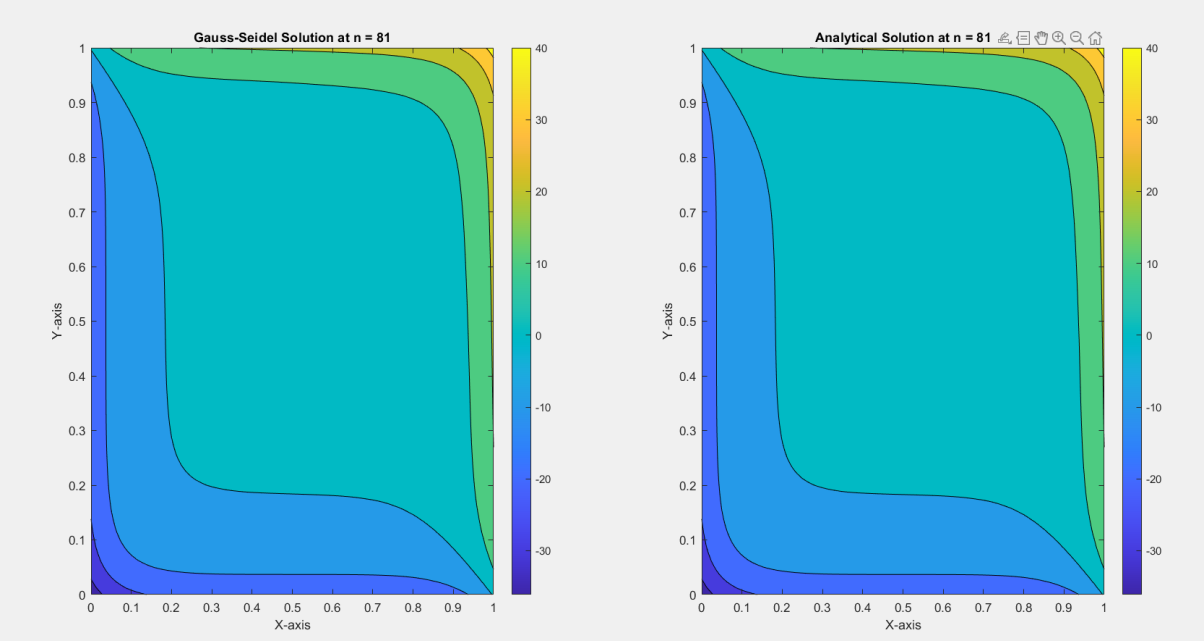
N = 81

1. JACOBI ITERATIONS



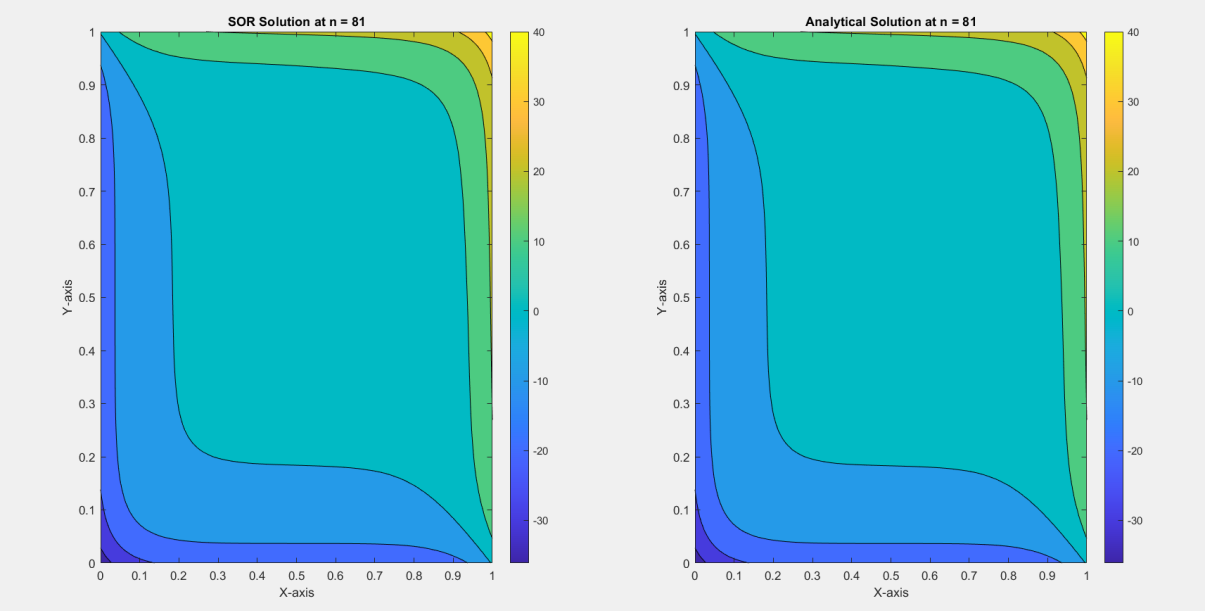
Iterations = 20160

2. GAUSS – SEIDEL



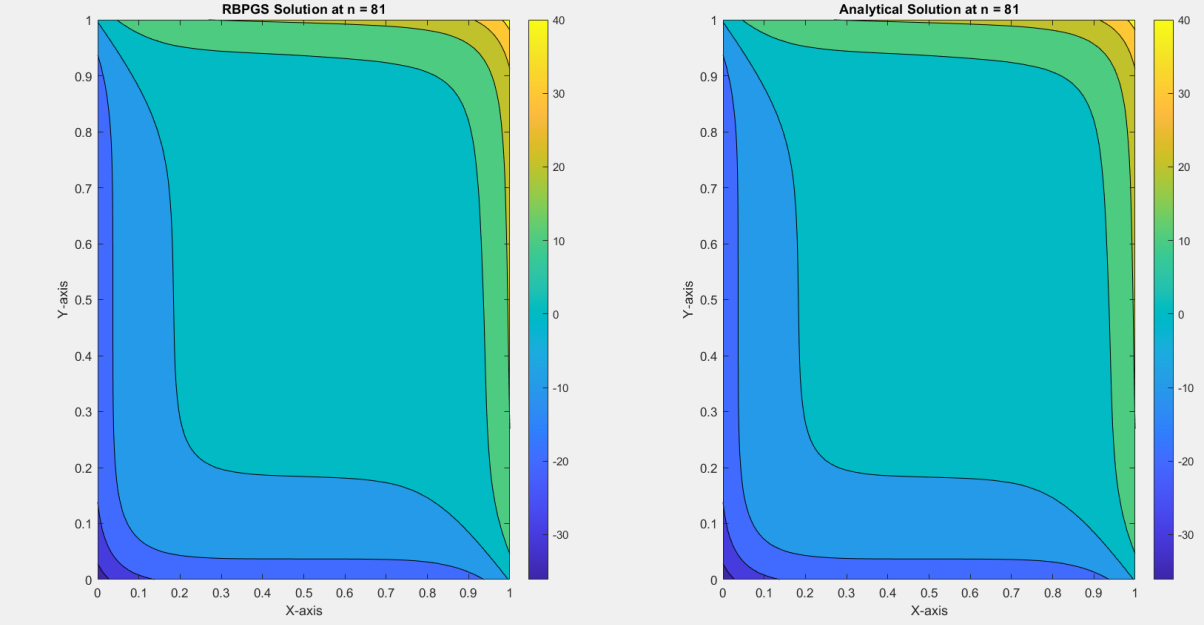
Iterations = 10604

3. SUCCESSIVE OVER-RELAXATION



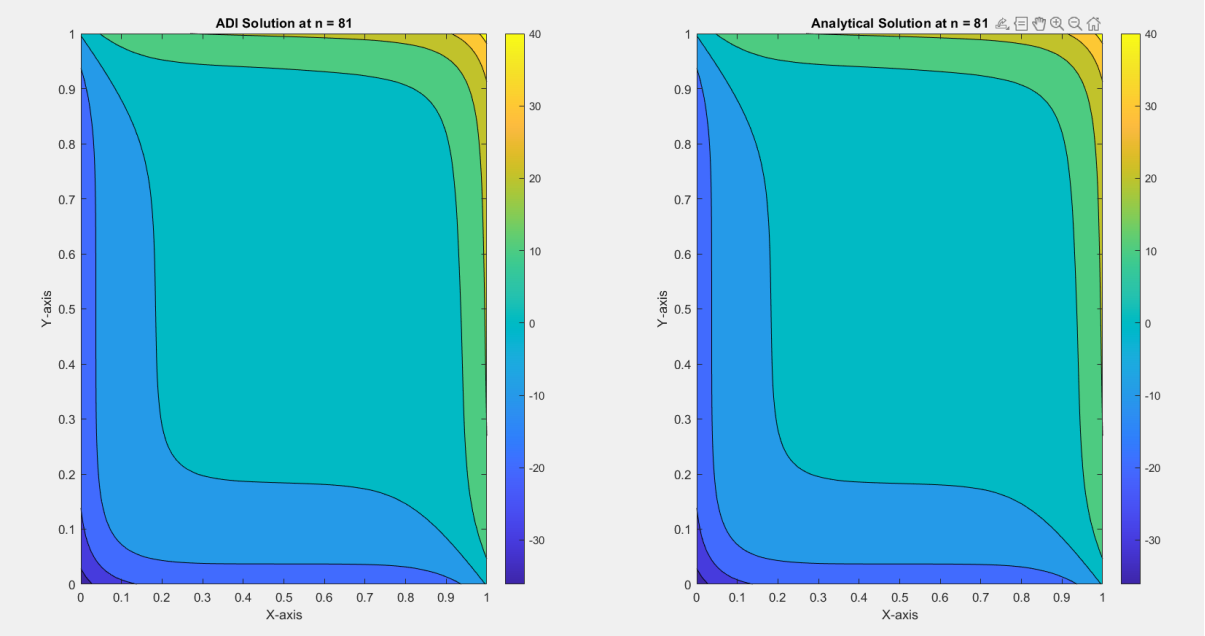
Iterations = 1716

4. RED-BLACK POINT GAUSS SEIDEL



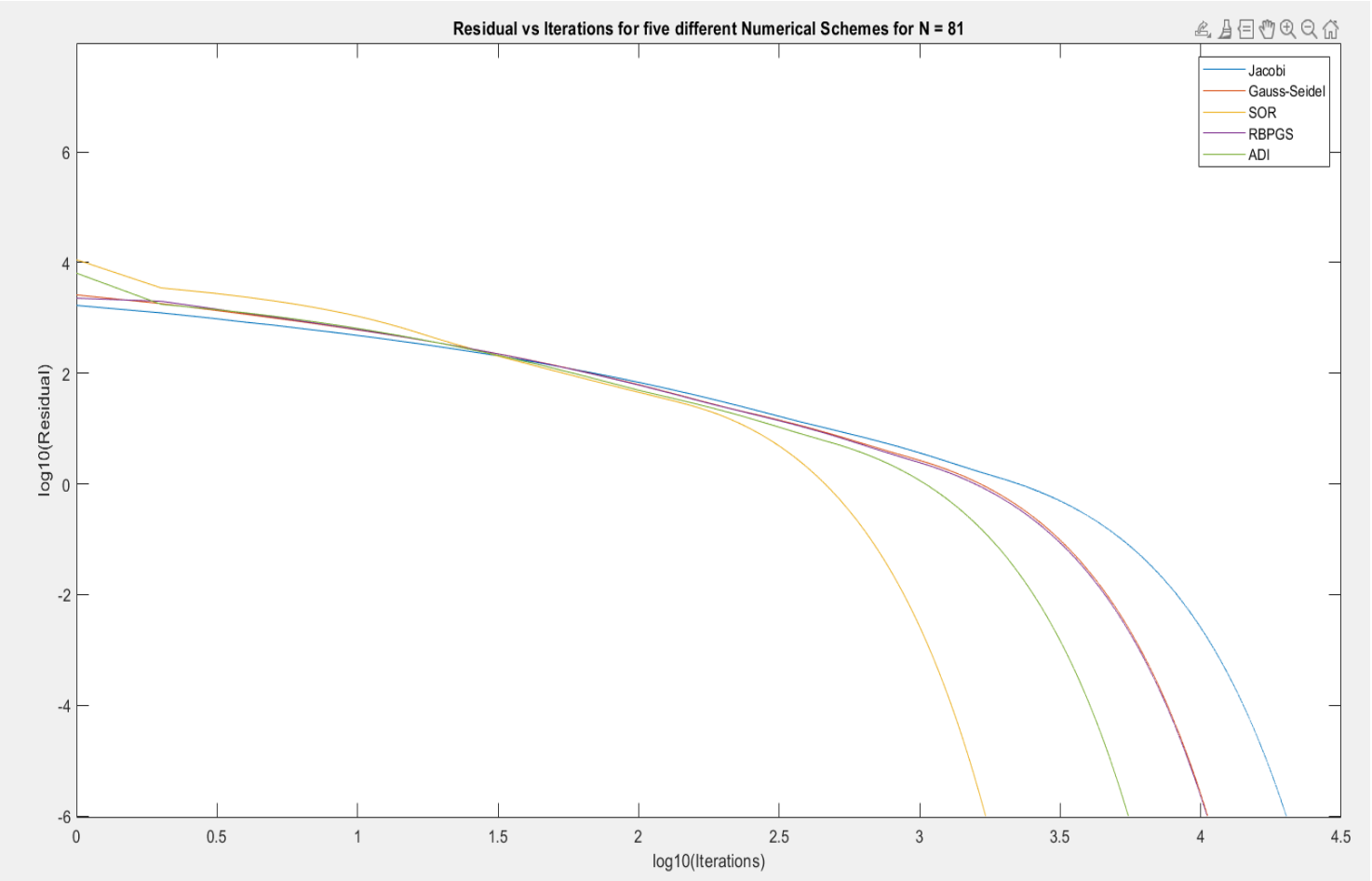
Iterations = 10530

5. ALTERNATING DIRECTION IMPLICIT



Iterations = 5528

6. **Comparison between different schemes for N = 81**



NOTE:

My code for N = 81 takes some time to give results, so please wait for some time for the code to complete the execution. Also, my code prints iterations required in the different methods while it runs, therefore, the code will end the execution when the iteration count of all the five numerical schemes will be printed on the screen along with the figure of Residual vs Iterations plot. Also converged solution for one of the schemes will be shown on the screen in one of the figures (which means two figures will be shown as the execution ends).