E94114057 古清賢 hw7

HW7

Solve the problem

$$4x_1 - x_2 - x_4 = 0$$
$$-x_1 + 4x_2 - x_3 - x_5 = -1$$
$$-x_2 + 4x_3 + x_5 - x_6 = 9$$
$$-x_1 + 4x_4 - x_5 - x_6 = 4$$
$$-x_2 - x_4 + 4x_5 - x_6 = 8$$
$$-x_3 - x_5 + 4x_6 = 6$$

by (a) Jacobi method, (b) Gauss-Seidel method, (c) SOR method, and (d) the conjugate gradient method.

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PS C:\Users\古清賢> & D:/anaconda/python.exe c:/Users/古清賢/Documents/GitHub/E94114057_numerical_hw7.py

Jacobi Method Solution: [1.174789 1.643174 2.448248 3.055981 3.949658 3.099476]

Gauss-Seidel Method Solution: [1.174789 1.643174 2.448248 3.055981 3.949658 3.099476]

SOR Method Solution: [1.174789 1.643174 2.448248 3.055981 3.949658 3.099476]

Conjugate Gradient Method Solution: [1.175057 1.643311 2.448415 3.055369 3.948965 3.098772]
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