



Reporte del método de gauss seidel y Jacobi

2° parcial

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Metodo Gauss Seidel Jacobi

$$1) 8x + 7y - z = 8$$

$$2) -x + 12y + 4z = -11$$

$$3) 5x - 9y + 23z = 0$$

Jacobi

1- Definir Diagonal Dominante
2- Despejar x, y, z

$$x = \frac{8 - 7y + z}{8}$$

$$y = \frac{-11 + x - 4z}{12}$$

$$z = \frac{5x - 4y}{23}$$

Iteraciones

$$x = 0 \quad y = 0 \quad z = 0$$

$$y = 0$$

Com error de 1%

3- Evaluar

$$x = \frac{8 - 7(0) + (0)}{8} = 0.714$$

$$y = \frac{-11 + (0) - 4(0)}{12} = -0.916$$

$$z = \frac{5(0.714) - 9(0)}{23} = 0.154$$

$$4. \text{ error} = \left| \frac{x_{\text{actual}} - x_{\text{prev}}}{x_{\text{prev}}} \right| \times 100$$

$$I_1 \quad x = 0.714 \quad y = -0.916 \quad z = 0.154$$

$$x = \frac{8 - 7(-0.916) + (0.154)}{8} = 0.936$$

$$y = \frac{-11 + (0.936) - 4(0.154)}{12} = -0.837$$

$$z = \frac{5(0.936) - 9(-0.837)}{23} = 0.208$$

$$\text{Para } x \text{ Error: } \left| \frac{1 - 0.714}{0.936} \right| \times 100 = 57.96\%$$

$$y = \left| \frac{1 - 0.916}{-0.837} \right| \times 100 = 6.88\%$$

$$z = \left| \frac{1 - 0.154}{0.208} \right| \times 100 = 100\%$$

5.3

Paso 3

$$\lambda = 0.452 \quad \gamma = 0.857 \quad z = 0.203$$

$$\lambda = \frac{5 - 2(0.857) + (0.203)}{23} = 0.498$$

$$\gamma = \frac{-11 + (0.432) + 4(0.203)}{-12} = 0.946$$

$$z = \frac{-5(0.452) + 4(0.857) - 0.232}{23}$$

Paso 4 error

$$\lambda = \left| 1 - \frac{0.452}{0.452} \right| \times 100 = 0.00\%$$

$$\gamma = \left| 1 - \frac{0.046}{0.782} \right| \times 100 = 0.83\%$$

$$z = \left| 1 - \frac{0.237}{0.251} \right| \times 100 = 0.19\%$$