

3)

- $\det(A - \lambda I) = \lambda^2 - 2\lambda - 3$

- $\lambda_1 = 3, \lambda_2 = -1$

- $\lambda_1 = 3, \lambda_2 = -1$

- Any multiple of $[1 \ 0.5]^T$ with $\lambda = 3$

- $[1 \ -0.5]^T$ with $\lambda = -1$

- $y_1 = Ax_0 = [5 \ 2]^T, x_1 = \frac{y_1}{\|y_1\|_\infty} = [1 \ 0.4]^T$

- It will converge to $[1 \ 0.5]^T$

- 3.5

- It will converge to $[1 \ -0.5]^T$

- 3

- It will converge to a triangular matrix