
Exercise 1 Let $A = \begin{bmatrix} -6 & -76 & -16 \\ 2 & 21 & 4 \\ -2 & -64 & -17 \end{bmatrix}$.

1. The vector $\mathbf{v}_1 = \begin{bmatrix} -4 \\ 1 \\ -3 \end{bmatrix}$ is an eigenvector of A because $A\mathbf{v}_1 = \lambda_1\mathbf{v}_1$ where $\lambda_1 =$

Multiple Choice:

- (i) -3
- (ii) -1
- (iii) 2

2. The vector $\mathbf{v}_2 = \begin{bmatrix} 8 \\ -2 \\ 7 \end{bmatrix}$ is an eigenvector of A because $A\mathbf{v}_2 = \lambda_2\mathbf{v}_2$ where $\lambda_2 =$

Multiple Choice:

- (i) -3
- (ii) -1
- (iii) 2

3. The vector $\mathbf{v}_3 = \begin{bmatrix} 4 \\ -1 \\ 4 \end{bmatrix}$ is an eigenvector of A because $A\mathbf{v}_3 = \lambda_3\mathbf{v}_3$ where $\lambda_3 =$

Multiple Choice:

- (i) -3
- (ii) -1
- (iii) 2

4. Since the Power Method converges to the dominant eigenvector, it can be used to approximate which eigenvector of A ?

Multiple Choice:

- (i) $\mathbf{v}_1$
- (ii) $\mathbf{v}_2$
- (iii) $\mathbf{v}_3$