

Determine if  $v$  is an eigenvector of the matrix  $A$ .

$$\boxed{?} \quad 1. \quad A = \begin{bmatrix} -1 & 4 & 7 \\ -1 & 4 & 7 \\ 4 & -4 & -4 \end{bmatrix}, \quad v = \begin{bmatrix} 1 \\ 2 \\ -1 \end{bmatrix}$$

$$\boxed{?} \quad 2. \quad A = \begin{bmatrix} -1 & -1 & -2 \\ 12 & 0 & -10 \\ -6 & -1 & 3 \end{bmatrix}, \quad v = \begin{bmatrix} -1 \\ 1 \\ -1 \end{bmatrix}$$

$$\boxed{?} \quad 3. \quad A = \begin{bmatrix} 6 & -3 & -6 \\ 0 & -3 & 0 \\ 3 & -3 & -3 \end{bmatrix}, \quad v = \begin{bmatrix} 9 \\ 7 \\ 1 \end{bmatrix}$$

Determine if  $v$  is an eigenvector of the matrix  $A$ .

**yes** 1.  $A = \begin{bmatrix} -1 & 4 & 7 \\ -1 & 4 & 7 \\ 4 & -4 & -4 \end{bmatrix}$ ,  $v = \begin{bmatrix} 1 \\ 2 \\ -1 \end{bmatrix}$

**yes** 2.  $A = \begin{bmatrix} -1 & -1 & -2 \\ 12 & 0 & -10 \\ -6 & -1 & 3 \end{bmatrix}$ ,  $v = \begin{bmatrix} -1 \\ 1 \\ -1 \end{bmatrix}$

**no** 3.  $A = \begin{bmatrix} 6 & -3 & -6 \\ 0 & -3 & 0 \\ 3 & -3 & -3 \end{bmatrix}$ ,  $v = \begin{bmatrix} 9 \\ 7 \\ 1 \end{bmatrix}$