

$$\lambda = 11.05$$

$$\vec{v} \cdot (A - \lambda I) = 0$$

$$(A - 11.05I) = 0 \Rightarrow \begin{pmatrix} 4 + 11.05 & 8 & -1 & -2 \\ -2 & -9 + 11.05 & -2 & -4 \\ 0 & 10 & 5 + 11.05 & -10 \\ -1 & -13 & -14 & -15 + 11.05 \end{pmatrix}$$

$$\begin{pmatrix} 15.05 & 8 & -1 & -2 \\ -2 & 2.05 & -2 & -4 \\ 0 & 10 & 15.05 & -10 \\ -1 & -13 & -14 & -2.05 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \\ k \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

$$~~15.05x + 8y - 12 - 2k = 0~~$$

\Rightarrow

\vec{v} where $\lambda = 11.05$.

$$\begin{pmatrix} x \\ y \\ z \\ k \end{pmatrix} \Rightarrow \begin{pmatrix} -0.07 \\ -0.02 \\ -1.6 \\ 1 \end{pmatrix}$$