$$5i - 3j + K = \vec{v}$$

$$|\vec{v}| = \sqrt{5^2 + (-3)^2 + 1^2} = \sqrt{25 + 9 + 1}$$

$$= \sqrt{35}$$

$$\hat{v} = \frac{\vec{v}}{|\vec{v}|} = \frac{5i - 3j + K}{\sqrt{35}} =$$

$$\frac{5i}{\sqrt{35}} \cdot - \frac{3j}{\sqrt{35}} + \frac{K}{\sqrt{35}}$$

a) $\begin{bmatrix} \dfrac{5}{\sqrt{35}} \\ \dfrac{-3}{\sqrt{35}} \\ \dfrac{1}{\sqrt{35}} \end{bmatrix}$

b) $\begin{bmatrix} \dfrac{20}{\sqrt{35}} \\ \dfrac{-12}{\sqrt{35}} \\ \dfrac{4}{\sqrt{35}} \end{bmatrix}$