Câu 21: Tính góc giữa 2 vecto

a/ : $\vec{u} = (1, -1, 4)$; $\vec{v}(5, 2, -1)$

$\Rightarrow \vec{u} \cdot \vec{v} = -1$

$\Rightarrow \alpha = 91,6^\circ$

b/ $\vec{u} = (2, 1, 5)$; $\vec{v} = (0, 3, 1)$

$\Rightarrow \vec{u} \cdot \vec{v} = 8$

$\Rightarrow \alpha = 56,4^\circ$

Bài 22:

a/ $\vec{u} = \begin{bmatrix} 5 \\ 2 \\ 1 \end{bmatrix}$, $\vec{v} = \begin{pmatrix} 2 \\ -1 \\ 3 \end{pmatrix}$

$\vec{u} \cdot \vec{v} = 6.$

$\|\vec{v}\|^2 = 14.$

$\text{proj}_{\vec{v}} \vec{u} = \frac{6}{14} \cdot \begin{pmatrix} 2 \\ -1 \\ 3 \end{pmatrix} = \begin{pmatrix} \frac{6}{7} \\ -\frac{3}{7} \\ \frac{9}{7} \end{pmatrix}$

b/ $\vec{u} = \begin{pmatrix} 3 \\ -2 \\ 1 \end{pmatrix}$, $\vec{v} \begin{pmatrix} 4 \\ 1 \\ 1 \end{pmatrix}$

$\vec{u} \cdot \vec{v} = 3 \cdot 4 + (-2) \cdot 1 + 1 = 11.$

$\|\vec{v}\|^2 = 4^2 + 1^2 + 1^2 = 18.$

$\text{proj}_{\vec{v}} \vec{u} = \frac{11}{18} \cdot \begin{pmatrix} 4 \\ 1 \\ 1 \end{pmatrix} = \begin{pmatrix} \frac{22}{9} \\ \frac{11}{18} \\ \frac{11}{18} \end{pmatrix}$