HW #1

CROSS PRODUCT

1. Let $\vec{u} = u_x \hat{x} + u_y \hat{y} + u_z \hat{z}$ be a vector in \mathbb{R}^3 . Determine two vectors \vec{v} and \vec{w} such that

 $\vec{u} = \vec{v} imes \vec{w}$.

It is possible to solve this problem by brute force; find a better way if you can. HINT: What properties should \vec{v} and \vec{w} have?

NOTATION:

- u_x, u_y, u_z are constants, not partial derivatives;
- \hat{x} , \hat{y} , \hat{z} are the standard basis vectors in \mathbb{R}^3 , also written as $\hat{\imath}$, \hat{j} , \hat{k} .