

NORMALIZING A VECTOR

Start with any nonzero vector \underline{u} . Finding a **unit vector** in the **same direction** as \underline{u} is called normalizing the original vector \underline{u} .

Procedure:

- start with any nonzero vector \underline{u}
- Then calculate $\|\underline{u}\|$ (i.e. the magn. of \underline{u})
- Form the scalar multiple $\frac{1}{\|\underline{u}\|} \underline{u}$, which is the same as $\frac{\underline{u}}{\|\underline{u}\|}$. This new vector is a unit vector, and has the same direction as \underline{u} .