

# Unit Vector

- *ij* point in a specific direction and have length 1
- We can generate a unit vector from any given vector

- $\hat{\mathbf{A}} = \frac{\vec{\mathbf{A}}}{|\vec{\mathbf{A}}|}$

$$\vec{\mathbf{A}} = 3\hat{i} - 4\hat{j} \quad |\vec{\mathbf{A}}| = \sqrt{3^2 + 4^2} = 5$$

$$\hat{\mathbf{A}} = \frac{3}{5}\hat{i} - \frac{4}{5}\hat{j}$$