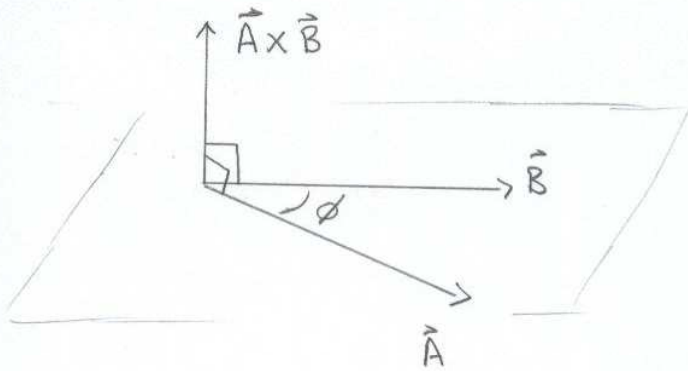


# Cross Product

10-2

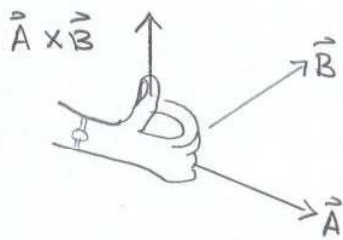


The cross product  $\vec{A} \times \vec{B}$  is read:  
"A cross B" or  
"A crossed into B".

Area!

$$|\vec{A} \times \vec{B}| = AB \sin(\vec{A}, \vec{B}) = AB \sin \phi \quad 0^\circ \leq \phi \leq 180^\circ$$

The direction of  $\vec{A} \times \vec{B}$  can be found using the RHR.



$$\text{Is } \vec{A} \times \vec{B} = \vec{B} \times \vec{A} ?$$

$$\text{Is } \vec{A} \cdot \vec{B} = \vec{B} \cdot \vec{A} ?$$

$$\text{So } |\vec{A} \times \vec{B}| = AB \sin(\vec{A}, \vec{B})$$

AND

$$\tau = r F \sin(\vec{r}, \vec{F}) \Rightarrow$$

$$\therefore \vec{\tau} = \vec{r} \times \vec{F}$$

How do we actually calculate  $\vec{r} \times \vec{F}$ ?