1 | the cross product

1.1 | geometric definition of magnitude

$$\left|\vec{A} \times \vec{B}\right| = \left|\vec{A}_{\perp \vec{B}}\right| |B| = |\vec{A}||\vec{B}| \sin\theta$$

1.2 | geometric definition of the direction

If you rotate the first vector towards the second, and use the right hand rule, then your thumb will point in the direction of the cross product. (Fingers curve in the direction of the first vector rotating towards the second).

2 | properties

2.1 | anticommutative

$$\vec{A} \times \vec{B} = -\vec{B} \times \vec{A}$$

2.2 | not associative

$$\left(\vec{A} \times \vec{B}\right) \times \vec{C} \neq \vec{A} \times \left(\vec{B} \times \vec{C}\right)$$