Definition: Cross Product

The cross product of two vectors $\vec{a}, \vec{b} \in \mathbb{R}^3$ is a vector $\vec{c}$ perpendicular to both $\vec{a}$ and $\vec{b}$ and whose magnitude is equal to the area of the parallelogram generated by $\vec{a}$ and $\vec{b}$:

$$\vec{a} \times \vec{b} \overset{\mathtt{D}}{=} \|a\| \, \|b\| \sin(\theta) \, \vec{n}$$

with θ being the angle in the range $[0, \pi]$ between $\vec{a}$ and $\vec{b}$ and $\vec{n}$ a unit vector that is normal to both $\vec{a}$ and $\vec{b}$ oriented with respect to the right hand rule.