

Section 12.4 Unit Tangent, Normal, and Binormal Vectors

The principal unit normal vector $\mathbf{N}(t)$ (or unit normal) is defined as

$$\mathbf{N}(t) = \frac{\mathbf{T}'(t)}{|\mathbf{T}'(t)|}.$$

It is important to note that $\mathbf{N}(t)$ is orthogonal to $\mathbf{T}(t)$.

The vector $\mathbf{B}(t) = \mathbf{T}(t) \times \mathbf{N}(t)$ is called the binormal vector.

The normal vector indicates the direction in which the curve is turning.