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Tangent of a curve

Definition. Tangent unit of a curve

Given a *regular* parameterized curve γ , the **tangent unit** at the point $\gamma(t)$ is

$$\hat{\mathbf{T}}[\gamma](t) := \frac{\gamma'}{\|\gamma'\|}$$

reparameterizations

And it transforms under a reparameterization like:

$$\hat{\mathbf{T}}[\gamma \circ \theta] = \alpha_O[\theta] \, (\hat{\mathbf{T}}[\gamma] \circ \theta)$$

but it still points to the same “direction” - tangent to the curve - so we say *it remains invariant* under reparameterizations.

Tangent line

Definition. Tangent line of a curve

Given a *regular* parameterized curve γ , the **tangent unit** at the point $\gamma(t)$ is

$$\mathbf{T_L}[\gamma](t) := \frac{\gamma'}{\|\gamma'\|}$$

Current note has 0 direct children and 0 total descendants.

- stem
 - subobjects of and functions on $\mathbb{R}^n, S^n, \mathbb{C}^n$ and its quotients $\Gamma \backslash \mathbb{R}^n, \Gamma \backslash \mathbb{C}^n$
 - Curves
 - Tangent of a curve

And it has 6 siblings.

- stem
 - subobjects of and functions on $\mathbb{R}^n, S^n, \mathbb{C}^n$ and its quotients $\Gamma \backslash \mathbb{R}^n, \Gamma \backslash \mathbb{C}^n$
 - Curves
 - Arc length
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