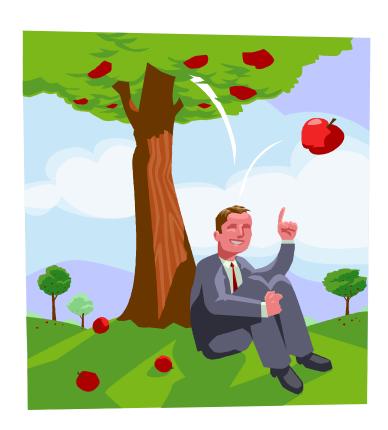
Properties of Derivatives of Vector Functions



If u and v are differentiable vector functions, k is a scalar, and f is a real-valued function, then,

$$1. \quad \left(\vec{u} + \vec{v}\right)' = \vec{u}' + \vec{v}'$$

$$2. \quad \left(k\vec{u}\right)' = k(\vec{u}')$$

3.
$$(f\vec{u})' = f(\vec{u}') + (f')\vec{u}$$

4.
$$(\vec{u} \cdot \vec{v})' = \vec{u} \cdot \vec{v}' + \vec{v} \cdot \vec{u}'$$

5.
$$(\vec{u} \times \vec{v})' = \vec{u} \times \vec{v}' + \vec{u}' \times \vec{v}$$