

DIRECTIONAL DERIVATIVES AND THE GRADIENT VECTOR

Problem 1. *Let $f: \mathbb{R}^3 \rightarrow \mathbb{R}$ be a differentiable function, and let $r(t)$, where $t \in [a, b]$, be a parametric curve in the domain of f . Show that vectors $\nabla f(r(t))$ and $r'(t)$ are perpendicular for all $t \in [a, b]$.*

REFERENCES

- [1] J. Stewart: *Calculus* 8th Edition, Cengage Learning, Boston 2016.