

**2023-04-21**

Suppose  $f : \mathbb{R}^n \times \mathbb{R} \rightarrow \mathbb{R}^n$  is continuously differentiable with  $f(x_0, 0) = 0$  and  $\partial f / \partial x$  nonsingular at  $(x_0, 0)$ . Then there is an implicit function  $x(s)$  such that  $x(0) = x_0$  and  $f(x(s), s) = 0$ . What is  $dx/ds$  at  $s = 0$ ?