

# chain rule: multivariable functions

If  $f(x(t), y(t))$ , and both  $x$  and  $y$  are functions of a single variable  $t$ , then:

$$\frac{df(x(t), y(t))}{dt} = \frac{\partial f}{\partial x} \frac{dx}{dt} + \frac{\partial f}{\partial y} \frac{dy}{dt}$$

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