

Th: (Chain Rule)

Let  $I, J \subset \mathbb{R}$  be open intervals.

Assume  $f: I \rightarrow J$  is differentiable at  $a \in I$   
and  $g: J \rightarrow \mathbb{R}$  is differentiable at  $f(a) \in J$ .

Then,  $g \circ f$  is diff. at  $a$  and

$$(g \circ f)'(a) = f'(a) g'(f(a)).$$