Differentiation rules in short hand notation

$$(f+g)' = f' + g'$$

$$(fg)' = f'g + fg',$$

$$\left(\frac{f}{g}\right)' = \frac{f'g - fg'}{g^2}, \text{ if } g \neq 0,$$

$$(f^g)' = gf^{g-1}f' + f^g g' \ln f, \text{ if } f > 0,$$

$$(f \circ g)' = (f' \circ g)g',$$

$$\left(f^{-1}\right)' = \frac{1}{f' \circ f^{-1}}, \text{ if } f' \neq 0.$$