## 1 Wzory na pochodne wybranych funkcji

 $c \in \mathbb{R}$   $\alpha \in \mathbb{R}$ 

$$c' = 0,$$

$$(x^{a})' = ax^{a-1},$$

$$(\log_{a} x)' = \frac{1}{x \cdot \ln a},$$

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$$(\log_{a} x)' = \frac{1}{x \cdot \ln a},$$

$$(\log_{a} x)' = -\sin x,$$

$$(\log_{a} x)' = \frac{1}{\cos^{2} x},$$

$$(\log_{a} x)' = \frac{1}{\sin^{2} x},$$

$$(\log_{a} x)' = -\sin x,$$

$$(\log_{a} x)' = \frac{1}{\cos^{2} x},$$

$$(\log_{a} x)' = -\sin x,$$

$$(\log_{a} x)' = -\frac{1}{\sin^{2} x},$$

$$(\operatorname{cosh} x)' = -\frac{1}{\sin^{2} x},$$

$$(\operatorname{cosh} x)' = -\sin x,$$

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$$(\operatorname{cosh} x)' = -\cos x,$$

$$(\operatorname{cosh}$$

## 2 Pochodna sumy, różnicy, iloczynu, ilorazu funkcji

$$(f(x) + g(x))' = f'(x) + g'(x)$$
(1)

$$(c \cdot f(x))' = c \cdot f'(x), \qquad c - \text{liczba}$$
 (2)

$$(f(x) \cdot g(x))' = f'(x) \cdot g(x) + f(x) \cdot g'(x)$$
(3)

$$\left(\frac{f(x)}{g(x)}\right)' = \frac{f'(x) \cdot g(x) - f(x) \cdot g'(x)}{g^2(x)}, \qquad \text{o ile } g \neq 0$$
(4)

(5)

## 3 Pochodna funkcji złożonej

Dana jest funkcja złozona  $y=(g^\circ w)(x)$  czyli y=g(w(x)). w=w(x) - funkcja wewnętrzna y=g(w) - funkcja zewnętrzna

## 3.1 Wzory na pochodne funkcji złożonych

$$c \in \mathbb{R}$$
  $\alpha \in \mathbb{R}$ 

$$c' = 0,$$

$$(w^{a})' = aw^{a-1} \cdot w', \qquad (a^{w})' = a \cdot w^{a-1} \cdot w', \qquad (e^{w})' = e^{w} \cdot w',$$

$$(\log_{a} w)' = \frac{1}{w \cdot \ln a} \cdot w', \qquad (\ln)' = \frac{1}{w} \cdot w',$$

$$(\sin w)' = (\cos w) \cdot w', \qquad (\cos w)' = (-\sin w) \cdot w', \qquad (\cot w)' = \frac{1}{\sin^{2} w} \cdot w',$$

$$(\tan w)' = \frac{1}{\cos^{2} w} \cdot w', \qquad (\arcsin w)' = \frac{1}{\sqrt{1 - w^{2}} \cdot w'} \qquad (\arctan w)' = \frac{1}{1 + w^{2}} \cdot w',$$

$$(\sinh w)' = (\cosh w) \ cdotw', \qquad (\cosh w)' = (\sinh w) \cdot w', \qquad (tgh \ w)' = \frac{1}{\cosh^{2} w} \cdot w',$$

$$(\cot w)' = \frac{1}{\cosh^{2} w} \cdot w',$$