

$$973. y = (\arccos x)^2 \left[\ln^2 (\arccos x) - \ln (\arccos x) + \frac{1}{2} \right].$$

$$974. y = \frac{1}{2} \arctg \left(\sqrt[4]{1+x^4} \right) + \frac{1}{4} \ln \frac{\sqrt[4]{1+x^4} + 1}{\sqrt[4]{1+x^4} - 1}.$$

$$975. y = \frac{e^{-x^2} \arcsin(e^{-x^2})}{\sqrt{1-e^{-2x^2}}} + \frac{1}{2} \ln(1 - e^{-2x^2}).$$

$$976. y = \frac{a^x}{1+a^{2x}} - \frac{1-a^{2x}}{1+a^{2x}} \operatorname{arctg} a^{-x}.$$

978. Najděte derivace následujících funkcí

$$\begin{array}{ll} \text{a) } y = |(x-1)^2(x+1)^3|; & \text{b) } y = \arccos \frac{1}{|x|}; \\ \text{b) } y = |\sin^3 x|; & \text{c) } y = [x] \sin^2 \pi x. \end{array}$$

Pro funkci $f(x)$ určete derivaci zleva a derivaci zprava

$$1000. f(x) = |x|. \quad 1001. f(x) = [x] \sin \pi x.$$

$$1002. f(x) = x \left| \cos \frac{\pi}{x} \right| \quad (x \neq 0), \quad f(0) = 0.$$

$$1003. f(x) = \sqrt{\sin x^2}.$$

$$1004. f(x) = \frac{x}{1+e^x} \quad (x \neq 0), \quad f(0) = 0.$$

$$1005. f(x) = \sqrt{1-e^{-x^2}}. \quad 1006. f(x) = |\ln |x|| \quad (x \neq 0).$$

$$1007. f(x) = \arcsin \frac{2x}{1+x^2}.$$

$$1008. f(x) = (x-2) \operatorname{arctg} \frac{1}{x-2} \quad (x \neq 2), \quad f(2) = 0.$$

1036. Určete definiční obory inverzních funkcí $x = x(y)$ a určete jejich derivace

$$\begin{array}{ll} \text{a) } y = x + \ln x \quad (x > 0); & \text{b) } y = \operatorname{sh} x; \\ \text{b) } y = x + e^x; & \text{c) } y = \operatorname{th} x. \end{array}$$

Najděte derivace y_x (parametry jsou kladné), jestliže

$$1039. x = \sqrt[3]{1 - \sqrt{t}}, \quad y = \sqrt{1 - \sqrt[3]{t}}.$$

$$1040. x = \sin^2 t, \quad y = \cos^2 t.$$

$$1041. x = a \cos t, \quad y = b \sin t.$$

$$1042. x = a \operatorname{ch} t, \quad y = b \operatorname{sh} t.$$

$$1043. x = a \cos^3 t, \quad y = a \sin^3 t.$$

$$1044. x = a(t - \sin t), \quad y = a(1 - \cos t).$$

$$1045. x = e^{2t} \cos^2 t, \quad y = e^{2t} \sin^2 t.$$

$$1046. x = \arcsin \frac{t}{\sqrt{1+t^2}}, \quad y = \arccos \frac{1}{\sqrt{1+t^2}}.$$