

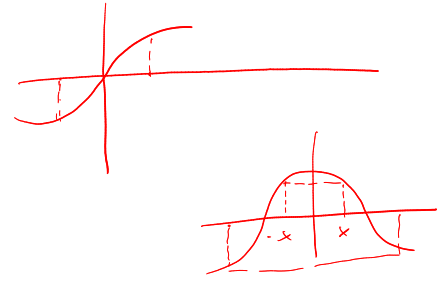
### Příklad 8.1

Určete zda je funkce lichá nebo sudá

a)  $y = -\frac{\sin x}{\cos x}$

b)  $y = \sqrt[3]{\frac{1-x^2}{1+x^2}} - 1$

c)  $y = x^2 - 4x + 5$



a)  $y = -\frac{\sin x}{\cos x}$

$$f(-x) = -\frac{\sin(-x)}{\cos(-x)} = -\frac{-\sin(x)}{\cos(x)} = \frac{\sin(x)}{\cos(x)} = -f(x) \Rightarrow \underline{\text{LICHÁ!}}$$

b)  $y = \sqrt[3]{\frac{1-x^2}{1+x^2}} - 1$

$$f(-x) = \sqrt[3]{\frac{1-(-x)^2}{1+(-x)^2}} - 1 = \sqrt[3]{\frac{1-x^2}{1+x^2}} - 1 = f(x) \Rightarrow \underline{\text{SUDÁ!}}$$

c)  $y = x^2 - 4x + 5$

$$f(-x) = (-x)^2 - 4(-x) + 5 = x^2 + 4x + 5 \dots \Rightarrow \underline{\text{NEMÍ SAMI L!}}$$

# POZNÁMKA:

MEZI FUNKCEMI  $f$  A  $f^{-1}$  PLATI:  $f(f^{-1}(x)) = x$  ;  $\forall x \in D(f^{-1})$   
 $f^{-1}(f(x)) = x$  ;  $\forall x \in D(f)$

PROTO PLATI

$$\sin(\arcsin x) = x, \quad x \in \langle -1, 1 \rangle \quad \arcsin(\sin x) = x, \quad x \in \langle -\frac{\pi}{2}, \frac{\pi}{2} \rangle$$

$$\cos(\arccos x) = x, \quad x \in \langle -1, 1 \rangle \quad \arccos(\cos x) = x, \quad x \in \langle 0, \pi \rangle$$

$$\lg(\operatorname{arctg} x) = x, \quad x \in \mathbb{R} \quad \operatorname{arctg}(\lg x) = x, \quad x \in \langle -\frac{\pi}{2}, \frac{\pi}{2} \rangle$$

$$\operatorname{ctg}(\operatorname{arccotg} x) = x, \quad x \in \mathbb{R} \quad \operatorname{arccotg}(\operatorname{ctg} x) = x, \quad x \in \langle 0, \pi \rangle$$

$$F: y = \arcsin(\sin x) = x$$

$\sin x$  je definovaná na  $\mathbb{R}$  ; máme množinu inverzovat pouze v interval

$$\arcsin(\sin x) = x ; \quad x \in \langle -\frac{\pi}{2}, \frac{\pi}{2} \rangle$$

