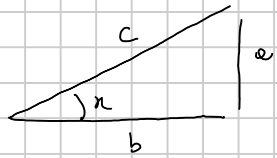


$$\sin x = \frac{a}{c} \qquad \cos x = \frac{b}{c}$$

$$(\sin x)^2 + (\cos x)^2 = \frac{a^2}{c^2} + \frac{b^2}{c^2} = \frac{a^2+b^2}{c^2} = \frac{c^2}{c^2} = 1.$$

$$(\sin x)^2 + (\cos x)^2 = 1$$

$$g(y) = \arcsin y$$

$$g'(y) = \frac{1}{\cos(\arcsin y)} = \frac{1}{\cos x} = \frac{1}{\sqrt{1-y^2}}$$

$$x = \arcsin y$$

$$\cos x = y$$

$\cos x$

$$\sin x = y \qquad (\cos x)^2 + (\sin x)^2 = 1$$

$$(\cos x)^2 + y^2 = 1$$

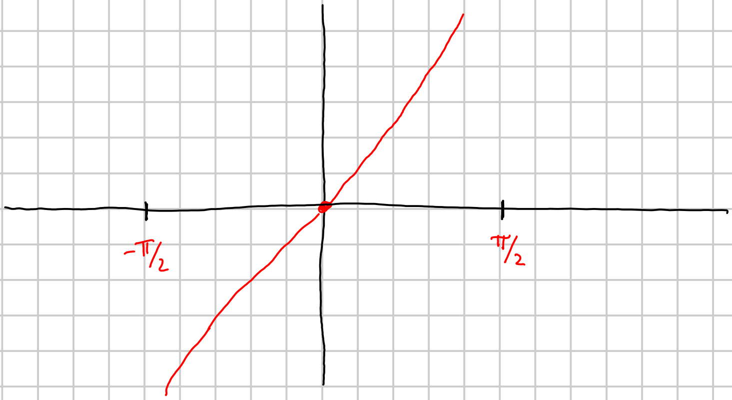
$$(\cos x)^2 = 1 - y^2$$

$$\boxed{\cos x = \sqrt{1-y^2}}$$

Per $x \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ $\underline{\cos x \geq 0}$

$$(D \arcsin)(y) = \boxed{\frac{1}{\sqrt{1-y^2}}}$$

$$tg(x) = \frac{\sin x}{\cos x} \qquad f(x) = tg(x) : \left(-\frac{\pi}{2}; \frac{\pi}{2}\right) \longrightarrow \mathbb{R}$$



$$f(x) = tg(x) = \frac{\sin}{\cos}$$

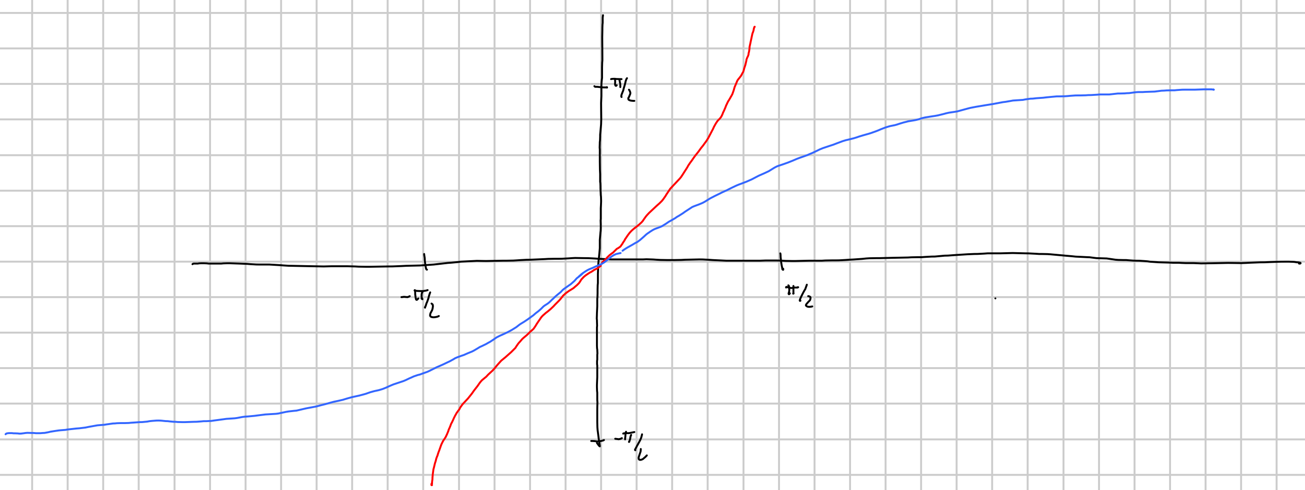
$$f'(x) = \frac{D(\sin)\cos x - D(\cos)\sin}{(\cos x)^2} =$$

$$= \frac{\cos x \cos x + \sin x \sin x}{(\cos x)^2}$$

$$= \frac{(\cos x)^2 + (\sin x)^2}{(\cos x)^2} = \frac{1}{(\cos x)^2}$$

$$= \frac{\cos^2}{\cos^2} + \frac{\sin^2}{\cos^2} = 1 + \left(\frac{\sin}{\cos}\right)^2 = 1 + \left(tg(x)\right)^2$$

$g(y) = \text{arctg} : \mathbb{R} \to \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$ $\qquad f(x) = tg(x) : \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \longrightarrow \mathbb{R}$



$$g'(y) = \frac{1}{f'(x)} \qquad \text{con} \quad x = g(y)$$

$$= \frac{1}{1 + (tg(x))^2} \qquad \cos \quad x = \text{arctg}\, y$$

$$tg\, x = y$$

$$= \frac{1}{1 + \left(tg\left(arctg\, y\right)\right)^2} = \frac{1}{1 + y^2}$$