Урок 5, задание 2

$y = \arcsin(\sin x)$

$$\frac{d}{dx}\left(\sin^{-1}(\sin x)\right) \to \frac{d}{da}\left(\sin^{-1} a\right)\frac{da}{dx}, \quad a = \sin x$$

$$\frac{d}{da}\left(\sin^{-1} a\right) = \frac{1}{\sqrt{1-a^2}}$$

$$\to \frac{\frac{d}{dx}(\sin x)}{\sqrt{1-\sin^2 x}} \to \frac{d}{dx}\sin x = \frac{d\sin a}{da}\cdot\frac{da}{dx}, \quad a = x$$

$$\frac{d}{da}\sin a = \cos a$$

$$\to \cos x\left(\frac{d}{dx}(x)\right)\frac{1}{\sqrt{1-\sin^2 x}} \to 1 \cdot \frac{\cos x}{\sqrt{1-\sin^2 x}} \to$$

$$\to \sqrt{\cos^2 x}\cdot \sec x$$

(secant function)