$$\sqrt{1-x^2}\,\frac{dy}{dx} = y$$

$$\int \frac{dy}{y} = \int \frac{dx}{\sqrt{1-x^2}}$$

$$\ln|y| = \sin^{-1}x + C$$

$$y = e^{\sin^{-1}x + C} = e^{\sin^{-1}x} \cdot e^{C} = Ce^{\sin^{-1}x}$$

$$1 = Ce^{\sin^{-1}\frac{\sqrt{2}}{2}} = 1 = Ce^{\pi/4} \quad C = \frac{1}{e^{\pi/4}} = e^{-\pi/4}$$

$$y = e^{-\pi/4} \cdot e^{\sin^{-1}x}$$

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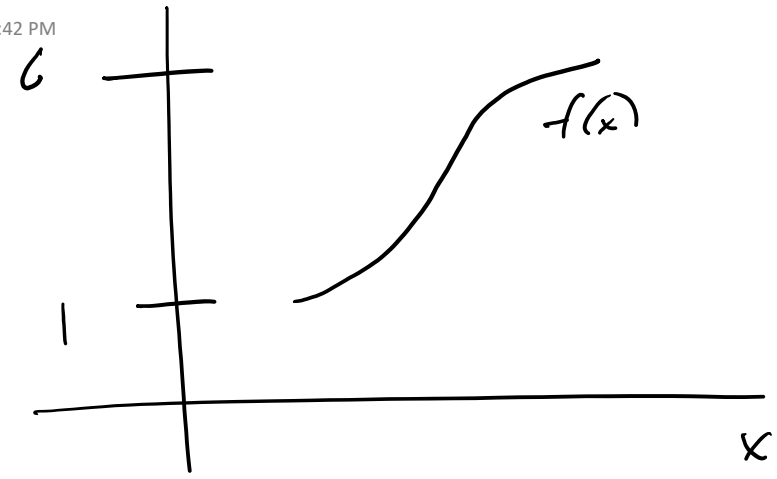

$5.1\overline{73}$

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$$\frac{d}{dx}\tan x = \sec^2 x$$

$$\frac{d}{dx}\tan^{-1} x = \frac{1}{x^2+1}$$

$$\frac{d}{dx} \sec x = \sec x \tan x$$

$$\frac{d}{dx} \sec^{-1} x = \frac{1}{|x| \sqrt{x^2 - 1}}$$

$$\frac{d}{dx} \sin x^3 = 3x^2 \cdot \cos x^3$$

$$\frac{d}{dx} \sin^{-1} 3x = \frac{1}{\sqrt{1-(3x)^2}} \cdot 3$$

$$\frac{d}{dx}\sin^3 x = \frac{d}{dx}(\sin x)^3$$

$$= 3\cos x \sin^2 x$$

$$\frac{d}{dx}e^{2x} = e^{2x}\cdot 2 \qquad \frac{d}{dx}\ln x = \frac{1}{x}$$

$$\frac{d}{dx}\ln(\cos x) = \frac{1}{\cos x}\cdot -\sin x$$

$$= -\tan x$$

$$\frac{d}{dx} x^3 - x^2 + x - 7$$

$$= 3x^2 - 2x + 1$$