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$$\frac{dy}{dx} = \frac{dy}{dt} \cdot \frac{dt}{dx} = \frac{dy}{dt} \cdot \frac{1}{\frac{dx}{dt}} = \left(\cos t - 2 \sin t + \frac{3}{\cos^2 t} \right) \frac{1}{\cos t} = 1 - 2 \tan t + \frac{3}{\cos^3 t}$$

ここで, $0 \leq t < \frac{\pi}{2}$ より $\cos t > 0$

よって,

$$\cos t = \sqrt{1 - \sin^2 t} = \sqrt{1 - x^2}$$

$$\tan t = \frac{x}{\sqrt{1 - x^2}}$$

よって,

$$\frac{dy}{dx} = 1 - \frac{2x}{\sqrt{1 - x^2}} + \frac{3}{(1 - x^2)^{\frac{3}{2}}}$$