(a) Given that $f(x) = \ln\left(\dfrac{1+x}{1-x}\right)$, find $f'(x)$, expressing your answer as a single fraction.

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(b) Solve the differential equation

$$\cos x \frac{dy}{dx} + y \tan x = \frac{\cos x}{e^{\sec x}}$$

given that $y = 1$ when $x = 2\pi$. Express your answer in the form $y = f(x)$.

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Answers:

(a) $\dfrac{2}{(1-x^2)}$

(b) $y = \dfrac{x + e - 2\pi}{e^{\sec x}}$