Solve An Initial Value Problem Using Odesolve

Given

$y''(x)^2 + 4 \cdot y'(x)^2 = 4$ <= Define differential equation

$y(0) = 0 \qquad y'(0) = 1$ <= Define initial conditions

$y := \text{Odesolve}(x, 1)$

Compare to Exact Solution

$y_{exact}(x) := \sin(x) \cdot \cos(x)$ $\qquad$ $dydx(x) := \frac{d}{dx} y_{exact}(x) \rightarrow \cos(x)^2 - \sin(x)^2$

$y_{exact}(0) = 0$ $\qquad$ $dydx(0) = 1$