

$$x = \frac{2}{t}, \quad y = \sqrt{t} e^{-t} \Rightarrow$$

$$\frac{dy}{dt} = t^{1/2}(-e^{-t}) + e^{-t} \left(\frac{1}{2}t^{-1/2}\right) = \frac{1}{2}t^{-1/2}e^{-t}(-2t + 1) = \frac{-2t + 1}{2t^{1/2}e^t},$$
$$\frac{dx}{dt} = -\frac{2}{t^2}, \quad \text{and} \quad \frac{dy}{dx} = \frac{dy/dt}{dx/dt} = \frac{-2t + 1}{2t^{1/2}e^t} \left(-\frac{t^2}{2}\right) = \frac{(2t - 1)t^{3/2}}{4e^t}.$$