

$$x = e^t + e^{-t}, y = 5 - 2t, 0 \leq t \leq 2.$$

$$dx/dt = e^t - e^{-t} \text{ and } dy/dt = -2, \text{ so}$$

$$\left(\frac{dx}{dt}\right)^2 + \left(\frac{dy}{dt}\right)^2 = e^{2t} - 2 + e^{-2t} + 4 = e^{2t} + 2 + e^{-2t} = (e^t + e^{-t})^2. \text{ Thus,}$$

$$L = \int_0^2 (e^t + e^{-t}) dt = [e^t - e^{-t}]_0^2 = e^2 - e^{-2} - (1 - 1) = e^2 - e^{-2}.$$