Solve the system of equations:.

$$2y - 10e^{-4x} = 0$$
$$7x + \ln y = -3$$

- We will solve the first equation for y in terms of x, substitute this value into the second equation and then solve for x.

- $2y = 10e^{-4x}$, $y = 5e^{-4x}$, $7x + \ln y = -3$, $7x + \ln(5e^{-4x}) = -3$

- $7x + \ln 5 + \ln(e^{-4x}) = -3$, $7x + \ln 5 - 4x = -3$

- $3x + \ln 5 = -3$, $3x = -3 - \ln 5$, $x = \dfrac{-3 - \ln 5}{3}$, $x = -1.5365$

- $y = 5e^{-4x}$, $y = 5e^{-4(-1.5365)}$, $y = 2334.038$