$$\frac{5\,lt}{min} * \frac{1\,mi}{60s} = \frac{1}{12}\,lt/s$$

$$\frac{6\,lt}{min} * \frac{1\,mi}{60s} = \frac{1}{10}\,lt/s$$

$$\left(\frac{3lb}{Lt} \cdot \frac{1\,lt/s}{12}\right) - \left(\frac{x\,lb}{10{,}000\,lt} \cdot \frac{1\,lt}{10\,s}\right) = \frac{dx}{dt}$$

$$\frac{dx}{dt} = \frac{1}{4} - \frac{x}{100{,}000}$$

$$\frac{dx}{dt} + \frac{x}{100{,}000} = \frac{1}{4}$$

$$e^{\frac{t}{100{,}000}}$$

$$\frac{d}{dt}\left(e^{t/100{,}000} \cdot x\right) = \frac{e^{t/100{,}000}}{4}$$

$$e^{t/100{,}000}\,x = \frac{1}{4}(100{,}000)\,e^{t/100{,}000} + C$$

$$x = 25000 + e^{-t/100{,}000}\,C$$

$$100 = 25000 + C$$

$$x = 25000 - 24900\,e^{-t/100{,}000}$$

$$\ln\left(\frac{250}{249}\right) = \frac{-t}{100{,}000}$$

$$\ln\left(\frac{249}{250}\right) \quad 100{,}000$$

$$100{,}000 * \left(\ln\left(\frac{250}{249}\right)\right) =$$

$$400.80\,s = t$$

a) $400.80\,s * \frac{1\,min}{60\,s} = 6.68\,min$

b) $\frac{dx}{dt} = \frac{1}{4} - \frac{x}{100{,}000}$

c) $x = 25000 - 24900\,e^{-t/100{,}000}$ → tiempo en segundos.

d) = El tanque se vacía antes de los 20 minutos.