This task can be solved by using Ideal gas law. The ideal gas law is the equation of state of a hypothetical ideal gas. It is a good approximation to the behaviour of many gases under various conditions, although it has several limitations. The ideal gas law is often introduced in its common form:

$$PV = nRT$$

where *P* is the pressure of the gas, *V* is the volume of the gas, *n* is the amount of substance of gas (also known as number of moles), *T*is the temperature of the gas and *R* is the ideal, or universal, gas constant, equal to the product of the Boltzmann constant and the Avogadro constant.

In SI units, *P* is measured in pascals, *V* is measured in cubic metres, *n* is measured in moles, and *T* in kelvin (273.15 Kelvin = 0.00 degrees Celsius). R has the value 8.314 $J\cdot K^{-1}\cdot mol^{-1}$ or 0.08206 $L\cdot atm\cdot mol^{-1}\cdot K^{-1}$ if using pressure in standard atmospheres (atm) instead of pascals, and volume in liters instead of cubic metres.

In this task amount of helium is constant, R is constant too. Volume, temperature and pressure is changeable, but two last one is given:

For both cases:

PV=nRT

nR=PV/T (nR is const)

So $P_1V_1/T_1 = P_2V_2/T_2$

V_2 can be found as : $V_2 = P_1V_1T_2/T_1P_2$.

V_2 = 1.00 * 2.50 * (273+25) / (273+18)* 0.80 = **3.2 L**