

In accordance with Ideal gas law we have the following equation:

$nRT = pV$ , 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.

$$R = 8.314 \text{ J} \cdot \text{K}^{-1} \cdot \text{mol}^{-1}.$$

First step will be the following:

$$n \cdot 8.314 \text{ J} \cdot \text{K}^{-1} \cdot \text{mol}^{-1} \cdot (100+273)\text{K} = 775 \cdot 133,322\text{Pa} \cdot 6,75 \cdot 10^{-3} \text{m}^3$$

Hence,  $n = 0,225$  moles.

We use the Ideal gas law for determination the gas volume at STP:

$$0,225 \text{mol} \cdot 8.314 \text{ J} \cdot \text{K}^{-1} \cdot \text{mol}^{-1} \cdot 273\text{K} = 760 \cdot 133,322\text{Pa} \cdot V$$

From this equation we have, that gas volume is  $0,005\text{m}^3$  or 5 liters.