$$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$$

$$V_2 = \frac{P_1V_1T_2}{T_1P_2} = \frac{100000 \cdot 0,5 \cdot 233,15}{273,15 \cdot 66661,184} = 0,64\ L$$

500 torr = 66661,1842 Pa
-40 ℃ = 233,15 K

Answer: 0,64 L