A weather balloon at Earth's surface has a volume of 4L at 302K and 751mmHg. If the balloon is released and the volume reaches 4.02 L at 730 mmHg, what is the temperature?

Solution:
We use the following law:

$$\frac{P_1 \cdot V_1}{T_1} = \frac{P_2 \cdot V_2}{T_2}$$

According to this law, we determined the T_2, after the balloon was released:

$$T_2 = \frac{T_1 \cdot P_2 \cdot V_2}{P_1 \cdot V_1} = \frac{302 \cdot 751 \cdot 4}{730 \cdot 4.02} = 309.14\,K$$

Answer: T=309.14 K