Thermodynamics problem - Ideal gas law - Tire with a leak

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A car tire is pressurized in the morning at a temperature of 20^0C to 2atm. By afternoon at a temperature of 35^0C the tire pressure has changed to 2.1atm, but the volume has decreased by 2%. Use the ideal gas law to show that the reason this happened is because of a leak in the tire.

Solution: Using the ideal gas law which is $PV = nRT$ we can make use of the gas constant R which is not changing during this process and claim

$$\left(\frac{PV}{nT}\right)_{\text{morning}} = \left(\frac{PV}{nT}\right)_{\text{afternoon}}$$

$$\frac{2\text{atm}\cdot V}{n\cdot 293\text{K}} = \frac{2.1\text{atm}\cdot .98V}{n'\cdot 308\text{K}}$$

$$\frac{2\text{atm}}{n\cdot 293\text{K}} = \frac{2.1\text{atm}\cdot .98}{n'\cdot 35^0\text{C}}$$

Solve for the ratio of initial to final moles

$$\frac{n'}{n} = \frac{293\text{K}\cdot 2.1\text{atm}\cdot .98}{2\text{atm}\cdot 308\text{K}} = .978886 \approx .98\surd$$

There is only 98% of air left, it lost some air to a leak.