



# Science Virtual Learning

## MPI Physics 210

### Thermodynamics 11: Ideal Gas Law

May 21, 2020



Lesson: MPI Thermodynamics 11 - Ideal Gas Law  
May 21, 2020

**Objective: To understand how the pressure and volume of a gas depend on the temperature and number of moles**

This video discusses the relationship between pressure, volume, temperature, and number of moles of an ideal gas, aka The Ideal Gas Law.

<https://youtu.be/jQptSq5wtM8>

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Video: Ideal Gas Law



Ex 1: An average car tire has a volume of 10.0 L, and is filled to a pressure of 2.18 atm at 5.00°C. How many moles of gas are in the tire?

Ex 2: In the previous problem, the temperature of the tire warms up to 28.0°C on a hot day. The volume and amount of gas stay the same. What is the new pressure, in atm?

Video: <https://youtu.be/2Dm1f8vgu-k>

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# Video: Ideal Gas Law - Examples



# Homework

- Try to solve the problems yourself, then watch the solution video:
- <https://youtu.be/KIXw1idQMWM>

HW 1: A balloon contains 0.133 moles of air at  $20.0^{\circ}\text{C}$  and 1.00 atm of pressure. What is the volume of the balloon?

HW 2: In the previous problem, the temperature of the air in the balloon is lowered until the volume reaches 2.50 L. The pressure and moles stay the same. What is the new temperature?



That's it!

