Science Virtual Learning

MPI Physics 240

Thermodynamics 11: Ideal Gas Law

May 6, 2020

Lesson: MPI Thermodynamics 11 – Ideal Gas Law
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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

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

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°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!