

The Ideal and Combined Gas Laws

Use your knowledge of the ideal and combined gas laws to solve the following problems. Hint: Figuring out which equation you need to use is the hard part!

- 1) If four moles of a gas at a pressure of 5.4 atmospheres have a volume of 120 liters, what is the temperature?
- 2) If I initially have a gas with a pressure of 84 kPa and a temperature of 35⁰ C and I heat it an additional 230 degrees, what will the new pressure be? Assume the volume of the container is constant.
- 3) My car has an internal volume of 2600 liters. If the sun heats my car from a temperature of 20⁰ C to a temperature of 55⁰ C, what will the pressure inside my car be? Assume the pressure was initially 760 mm Hg.
- 4) How many moles of gas are in my car in problem #3?
- 5) A toy balloon filled with air has an internal pressure of 1.25 atm and a volume of 2.50 L. If I take the balloon to the bottom of the ocean where the pressure is 95 atmospheres, what will the new volume of the balloon be? How many moles of gas does the balloon hold? (Assume T = 285 K)