

Ideal & Combined Gas Law Practice Sheet

(from http://misterguch.brinkster.net/practice_gas_laws_worksheets.html)

- 1) A bag of potato chips is packaged at sea level (1.00 atm) and has a volume of 315 mL. If this bag of chips is transported to Denver (0.775 atm), what will the new volume of the bag be?

- 2) If I have 4 moles of a gas at a pressure of 5.6 atm and a volume of 12 liters, what is the temperature?

- 3) A Los Angeles class nuclear submarine has an internal volume of eleven million liters at a pressure of 1.250 atm. If a crewman were to open one of the hatches to the outside ocean while it was underwater (pressure = 15.75 atm), what would be the new volume of the air inside the submarine?

- 4) If I have an unknown quantity of gas at a pressure of 1.2 atm, a volume of 31 liters, and a temperature of 87 °C, how many moles of gas do I have?

- 5) If I contain 3 moles of gas in a container with a volume of 60 liters and at a temperature of 400 K, what is the pressure inside the container?

- 6) A child has a toy balloon with a volume of 1.80 liters. The temperature of the balloon when it was filled was 20°C and the pressure was 1.00 atm. If the child were to let go of the balloon and it rose 3 kilometers into the sky where the pressure is 0.667 atm and the temperature is -10°C , what would the new volume of the balloon be?
- 7) A commercial airliner has an internal pressure of 1.00 atm and temperature of 25°C at takeoff. If the temperature of the airliner drops to 17°C during the flight, what is the new cabin pressure?
- 8) If I have 7.7 moles of gas at a pressure of 0.09 atm and at a temperature of 56°C , what is the volume of the container that the gas is in?
- 9) If I have 17 moles of gas at a temperature of 67°C , and a volume of 88.89 liters, what is the pressure of the gas?
- 10) If divers rise too quickly from a deep dive, they get a condition called “the bends” which is caused by the expansion of very small nitrogen bubbles in the blood due to decreased pressure. If the initial volume of the bubbles in a diver’s blood is 15 mL and the initial pressure is 12.75 atm, what is the volume of the bubbles when the diver has surfaced to 1.00 atm pressure?

Answers w/o units: 5.68, 2.42, .85, 406, 375, 191, .736, .973,
873000 205, 143, 1.64, 1.26, 13.3, 2310, 5.34