

Combined Gas Law Practice Sheet

- 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) 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?

- 3) 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?

- 4) 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?

- 5) 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?