

Practice Celebration for Gas Chemistry 2025

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1. A helium balloon is filled to a volume of 78.5 liters, at 2.50 atm, and the gas temperature is 295 K. If the balloon cools to 252 K, and the volume drops to 64.0 Liters. What is the new pressure in this balloon?
2. At constant temperature a sample of carbon dioxide gas is at 100. liters and 125 kPa. If the pressure is tripled, what is the new volume of CO₂?
3. At constant pressure, a sample of methane gas is at 250. liters and 273 K, but then is heated up to 373 K, what is the new volume of methane?
4. At constant volume, a sample of oxygen is at 2.25 atm and 295 K. If the oxygen is cooled to 268 K, what is the new pressure of this gas?
5. Convert 125 kPa to mm of Hg.
6. Convert 25.0 psi into atmospheres.
7. Convert 945 mm Hg into kPa.
8. Convert 0.975 atm into pounds per square inch.
9. Write Avogadro's Hypothesis neatly.
10. The KMT (Kinetic Molecular Theory) states the seven following concepts
 - Gas Particles...
 - A. are in random, constant, straight line motion.
 - B. are separated from each other by vast distances from each other, relative to their actual sizes.
 - C. act as small hard spheres.
 - D. (atoms or molecules) have no attraction, or repulsion, for each other.
 - E. have collisions that are ELASTIC.
 - And...
 - F. Ideal gases can be compressed indefinitely but they remain gases.
 - G. The average Kinetic Energy is directly proportional to the Kelvin Temperature of a gas.

Explain each one in high school English. No hinting, be clear, not vague.