

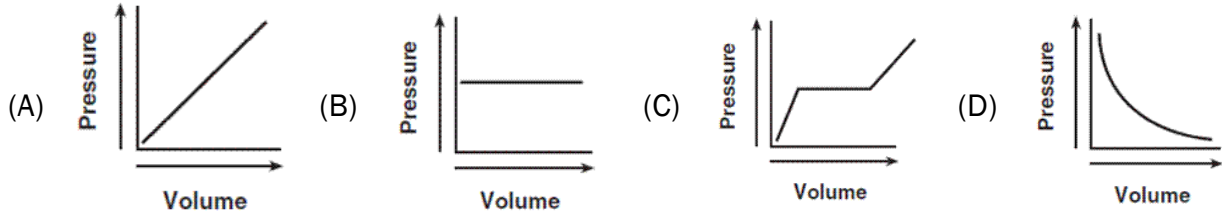
Name _____
Honors Physics
Period _____

Date _____
Thermodynamics WS #4H
Mrs. Nadworny

Gas Laws

Directions: Read textbook pages 376 - 385. Solve the following problems using the GUESS method and proper significant figures. Be sure to show ALL work.

1. Which graph represents the relationship between pressure and volume for a sample of an ideal gas at constant temperature?



2. Which statement describes the particles of an ideal gas?
- (A) The particles move in a well-defined, circular paths.
 - (B) When particles collide, energy is lost.
 - (C) There are forces of attraction between the particles.
 - (D) The volume of the particles is negligible.
3. An ideal gas is enclosed in a sealed container. Upon, heating, which property of the gas does not change?
- (A) Pressure (B) Volume (C) Average Speed (D) Kinetic Energy
4. A box contains two compartments of equal volume separated by a divider. The two compartments each contain a random sample of n moles of a certain gas, but the pressure in compartment A is twice the pressure in compartment B. Which of the following statements is true?
- (A) The temperature in A is twice the temperature in B
 - (B) The temperature in B is twice the temperature in A
 - (C) The value of the ideal gas constant, R , in A is twice the value of R in B
 - (D) The temperature in A is four times as great as the temperature in B
 - (E) The gas in A is a heavier isotope than the gas in B
5. There are four moles of a gas at 5.6×10^5 Pa and a volume of 0.012 m^3 . Calculate the temperature of the gas.

6. There is an unknown quantity of gas at 1.2×10^5 Pa and a volume of 0.031 m^3 and a temperature of $87 \text{ }^\circ\text{C}$. How many moles of gas is there?
7. A gas in a closed container is under a pressure of 1 Pa and a temperature of $-173 \text{ }^\circ\text{C}$. The gas is then heated to $27 \text{ }^\circ\text{C}$. What is the new pressure of the gas?
8. A gas has a volume of $3.0 \times 10^{-4} \text{ m}^3$ at $4.0 \times 10^4 \text{ Pa}$. Calculate the new volume if the pressure is changed to $8.0 \times 10^4 \text{ Pa}$ while temperature remains constant.
9. A sample of gas has 3.95×10^{36} particles in it. Calculate the number of moles contained in the sample.

Answers in size order: 1.5×10^{-4} , 1.2, 3, 2.0×10^2 , 6.56×10^{12}