Ideal Gas multiple choice

1.

10. In the kinetic model of an ideal gas, it is assumed that

A. the forces between the molecules of the gas and the container are always zero.

B. the intermolecular potential energy of the molecules of the gas is constant.

C. the kinetic energy of a given molecule of the gas is constant.

D. the momentum of a given molecule of the gas is constant.

2, 3.

9. The temperature of an ideal gas is a measure of the molecules' average

A. velocity.

B. momentum.

C. kinetic energy.

D. frequency of collisions.

10. For an ideal gas of constant mass the pressure is always proportional to

A. density and volume.

B. density and temperature.

C. volume and temperature.

D. volume only.

4.

11. The mole is defined as

A. $\frac{1}{12}$ the mass of an atom of the isotope carbon-12.

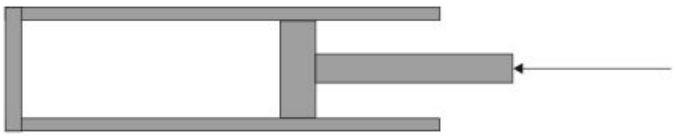
B. the amount of a substance that contains as many elementary entities as the number of atoms in 12 g of the isotope carbon-12.

C. the mass of one atom of the isotope carbon-12.

D. the amount of a substance that contains as many nuclei as the number of nuclei in 12 g of the isotope carbon-12.

5.

12. A gas is contained in a cylinder by a piston.



The gas is compressed rapidly by moving the piston in the direction shown. The best explanation for the resulting increase in temperature of the gas is that the molecules of the gas gain kinetic energy

A. from the moving piston.

B. by colliding more frequently with each other.

C. by being pushed closer together.

D. by colliding more frequently with the walls of the cylinder.

6.

12. The behaviour of real gases is different from that predicted for ideal gases. Which of the following statements about real gases is **not** correct?

A. Gas molecules have potential energy.

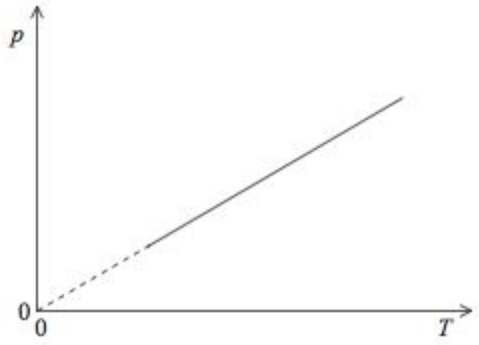
B. Forces between gas molecules are always negligible.

C. Gas molecules have volume.

D. Real gases can liquefy.

7.

11. The graph shows the variation with absolute temperature T of the pressure p of a fixed mass of an ideal gas.



Which of the following is correct concerning the volume and the density of the gas?

	Volume	Density
A.	constant	constant
B.	constant	increasing
C.	increasing	constant
D.	increasing	increasing

8.

12. A fixed mass of an ideal gas is at temperature T. The pressure is doubled and the volume is halved. What is the temperature after these changes?

A. $\frac{T}{2}$

B. T

C. $2T$

D. $4T$

9.

8. An ideal gas and a solid of the same substance are at the same temperature. The average kinetic energy of the gas molecules is E_g and the average kinetic energy of the solid molecules is E_s. What is the comparison between E_g and E_s?

A. E_g is less than E_s.

B. E_g equals E_s.

C. E_g is greater than E_s.

D. The relationship between E_g and E_s cannot be determined.

Solutions

1. B
2. C
3. B
4. B
5. A
6. B
7. A
8. B
9. B