



ACROSS

- 1** In statistical mechanics, a degree of _____ is a single scalar number describing the classical micro-state of a system.
- 4** _____'s law states that the ratio between the combining volumes of reagent gases and product can be expressed in small whole numbers.
- 7** _____ theory of gases attempts to explain macroscopic properties of gases by considering their molecular composition and motion.
- 8** _____'s law of partial pressures states that the total pressure exerted by a gaseous mixture is equal to the sum of the partial pressures of each component in a gas mixture.
- 10** The _____ gas law is the equation of state of a hypothetical gas consisting of identical particles of zero volume, with no intermolecular forces.
- 13** _____'s law of effusion states that the rate of effusion of a gas is inversely proportional to the square root of the mass of its particles.

- 14** _____ is one of the four major states of matter, consisting of freely moving atoms or molecules without a definite shape.
- 16** _____'s law states that at constant pressure, the volume of a given mass of an ideal gas increases or decreases by the same factor as its kelvin temperature increases or decreases.
- 17** A _____ gas is a hypothetical gas consisting of identical particles of zero volume with no intermolecular forces undergoing perfectly elastic collisions.
- 18** _____ is the process where individual molecules flow through a small pore without collisions.

DOWN

- 2** The _____ theorem, which relates the temperature of a system to its average energies, depends on the idea that at thermal equilibrium, energy is shared equally among its various forms within the system.
- 3** Each gas in a mixture of ideal gases has a _____

- pressure which is the pressure which the gas would have if it alone occupied the volume.
- 5** _____ mechanics is the application of probability theory to the field of mechanics.
- 6** The _____ constant is the physical constant relating temperature to energy.
- 9** Root mean _____ speed is the measure of the speed of particles in a gas that is most convenient for problem solving within the kinetic theory of gases.
- 11** _____'s law states that the product of the pressure and volume for an enclosed ideal gas will be constant if temperature remains fixed.
- 12** The van der _____ equation is the general equation of state for a fluid composed of particles that have a non-zero size and a pairwise attractive inter-particle force.
- 15** The _____ constant is a physical constant used in equations of state. It is another name for the Boltzmann constant, though expressed in units of energy per kelvin per mole rather than energy per kelvin per particle.