

# **EXHIBIT T**

# **McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS**

**Sixth  
Edition**

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On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

Over the six editions of the Dictionary, material has been drawn from the following references: G. M. Garrity et al., *Taxonomic Outline of the Prokaryotes*, Release 2, Springer-Verlag, January 2002; D. W. Linzey, *Vertebrate Biology*, McGraw-Hill, 2001; J. A. Pechenik, *Biology of the Invertebrates*, 4th ed., McGraw-Hill, 2000; *U.S. Air Force Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, Department of Defense, 1967; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, National Aeronautics and Space Administration, 1965; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *ADP Glossary*, Department of the Navy, NAVSO P-3097; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission.

**McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS,  
Sixth Edition**

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1 2 3 4 5 6 7 8 9 0 DOW/DOW 0 8 7 6 5 4 3 2

ISBN 0-07-042313-X

**Library of Congress Cataloging-in-Publication Data**

McGraw-Hill dictionary of scientific and technical terms--6th ed.

p. cm.

ISBN 0-07-042313-X (alk. paper)

1. Science--Dictionaries. 2. Technology--Dictionaries. I. Title: Dictionary of scientific and technical terms.

Q123.M15 2002

503--dc21

2002026436

- specified set of polynomials in  $n$  variables with coefficients in a specified field  $F$ , in a specified extension field of  $F$ . { 'al-jə'brā-ik 'set }
- algebraic subtraction** [MATH] The subtraction of signed numbers, equivalent to reversing the sign of the subtrahend and adding it to the minuend. { 'al-jə'brā-ik sɒb'træk-shən }
- algebraic sum** [MATH] 1. The result of the addition of two or more quantities, with the addition of a negative quantity equivalent to subtraction of the corresponding positive quantity. 2. For two fuzzy sets  $A$  and  $B$ , with membership functions  $m_A$  and  $m_B$ , that fuzzy set whose membership function  $m_{A+B}$  satisfies the equation  $m_{A+B}(x) = m_A(x) + m_B(x) - [m_A(x) \cdot m_B(x)]$  for every element  $x$ . { 'al-jə'brā-ik 'səm }
- algebraic surface** [MATH] A subset  $S$  of a complex  $n$ -space which consists of the set of complex solutions of a system of polynomial equations in  $n$  variables such that  $S$  is a complex two-manifold in the neighborhood of most of its points. { 'al-jə'brā-ik 'sər-fəs }
- algebraic symbol** [MATH] A letter that represents a number or a symbol indicating an algebraic operation. { 'al-jə'brā-ik 'sɪm-bəl }
- algebraic term** [MATH] In an expression, a term that contains only numbers and algebraic symbols. { 'al-jə'brā-ik 'tɜrm }
- algebraic topology** [MATH] The study of topological properties of figures using the methods of abstract algebra; includes homotopy theory, homology theory, and cohomology theory. { 'al-jə'brā-ik tɒ'pɒl-ə-dʒi }
- algebraic variety** [MATH] A set of points in a vector space that satisfy each of a set of polynomial equations with coefficients in the underlying field of the vector space. { 'al-jə'brā-ik vɔ'ri-əd-ē }
- algebra of subsets** [MATH] An algebra of subsets of a set  $S$  is a family of subsets of  $S$  that contains the null set, the complement (relative to  $S$ ) of each of its members, and the union of any two of its members. { 'al-jə-brə əv 'sɒb-sets }
- algebra with identity** [MATH] An algebra which has an element, not equal to 0 and denoted by 1, such that, for any element  $x$  in the algebra,  $x1 = 1x = x$ . { 'al-jə-brə wɪθ i'den-tə-ti }
- alged malaria** See falciparum malaria. { 'al-jəd mə'lɛr-ē-ə }
- Algenib** [ASTRON] A star in the constellation Pegasus. { 'al'jɛn-ɒb }
- Algerian onyx** See onyx marble. { 'al'jɛr-ē-ən 'ɒn-ɪks }
- algnesia** [PHYSIO] Sensitivity to pain. { 'al'jɛz-ē-ə }
- algometer** [PHYSIO] A device used to determine pain thresholds. { 'al-jə'sɪm-əd-ər }
- algesireceptor** [PHYSIO] A pain-sensitive cutaneous sense organ. { 'al-jə'sɪ-rē-ri'sep-tər }
- algicide** [MATER] A chemical used to kill algae. { 'al-jə'sɪd }
- algin** [MATER] A hydrophilic polysaccharide extracted from brown algae, such as giant kelp. [ORG CHEM] See sodium alginate. { 'al-jɒn }
- alginate** [BOT] An algal polysaccharide that is a major constituent of the cell walls of brown algae. { 'al-jə'nai }
- alginic acid** [ORG CHEM] (C<sub>6</sub>H<sub>8</sub>O<sub>6</sub>)<sub>n</sub>. An insoluble colloidal acid obtained from brown marine algae; it is hard when dry and absorbent when moist. Also known as algin. { 'al'jɪn-ɪk 'as-əd }
- alginic acid sodium salt** See sodium alginate. { 'al'jɪn-ɪk 'as-əd 'sɒd-ē-əm 'sɒlt }
- alginite** See alginate. { 'al-jə'nɪt }
- algitite** [PETR] The petrological unit that constitutes algal material present in considerable amounts in algal or boghead coal. Also known as alginite. { 'al'jɪt }
- algodonite** [MINERAL] Cu<sub>3</sub>As A steel gray-to silver white mineral consisting of copper arsenide and occurring as minute hexagonal crystals or in massive and granular form. { 'al'gɒd-ə'nɪt }
- Algol** [ASTRON] An eclipsing variable star of spectral classification B8 in the constellation Perseus; the star β Persei. Also known as Demon Star. [COMPUT SCI] An algorithmic and procedure-oriented computer language used principally in the programming of scientific problems. { 'al'gɔl }
- algology** [BOT] The study of algae. Also known as phycology. [MED] The science and study of phenomena associated with pain. { 'al'gɒl-ə-dʒi }
- Algol symbiotic** [ASTRON] A symbiotic star consisting of a red giant, a main-sequence star, and an accretion disk of gas from the red giant that forms around the main-sequence star and is heated by it. { 'al'gɔl 'sɪm-bē-əd-ɪk }
- Algonian orogeny** [GEO] Orogenic episode affecting Archean rocks of Canada about 2.4 billion years ago. Also known as Kenoran orogeny. { 'al'gɒm-ən ɒ'rɪj-ə-nē }
- algometer** [MED] An instrument for measuring pressure stimuli which produce pain. { 'al'gə-məd-ər }
- Algonkian** See Proterozoic. { 'al'gɒn 'kē-ən }
- allogophage** See cyanophage. { 'al'gɒ'faj }
- allogophobia** [PSYCH] Abnormal fear of pain. { 'al'gɒ'fɒb-ē-ə }
- algorithm** [MATH] A set of well-defined rules for the solution of a problem in a finite number of steps. { 'al'gɒ'rɪθ-əm }
- algorithmic error** [COMPUT SCI] An error in computer processing resulting from imprecision in the method used to carry out mathematical computations, usually associated with either rounding or truncation of numbers. { 'al'gɒ'rɪθ-mɪk 'er-ər }
- algorithmic language** [COMPUT SCI] A language in which a procedure or scheme of calculations can be expressed accurately. { 'al'gɒ'rɪθ-mɪk 'læŋ'gwɪdʒ }
- algorithm translation** [COMPUT SCI] A step-by-step computerized method of translating one programming language into another programming language. { 'al'gɒ'rɪθ-əm træn'z-lā-shən }
- algor mortis** [PATH] Postmortem cooling of the body. { 'al'gɒr'mɔrt-ɪs }
- alias** [COMPUT SCI] 1. An alternative entry point in a computer subroutine at which its execution may begin, if so instructed by another routine. 2. An alternative name for a file or device. [STAT] Either of two effects in a factorial experiment which cannot be differentiated from each other on the basis of the experiment. { 'ā-lē-əs }
- aliasing** [COMPUT SCI] In computer graphics, the jagged appearance of diagonal lines on printouts and on video monitors. [MATH] Introduction of error into the computed amplitudes of the lower frequencies in a Fourier analysis of a function carried out using discrete time samplings whose interval does not allow the proper analysis of the higher frequencies present in the analyzed function. { 'ā-lēs-ɪŋ }
- alicyclic** [ORG CHEM] 1. Having the properties of both aliphatic and cyclic substances. 2. Referring to a class of saturated hydrocarbon compounds whose structures contain one ring. Also known as cycloaliphatic; cycloalkane. 3. Any one of the compounds of the alicyclic class. Also known as cyclane. { 'al-ə'sɪ-klɪk }
- alidade** [ENG] 1. An instrument for topographic surveying and MAP by the plane-table method. 2. Any sighting device employed for angular measurement. { 'al-ə'daɪd }
- alien substitution** [GEN] The replacement of one or more chromosomes by those from a different species. { 'ā-lē-ən 'sɒb-stə'tiʃ-ən }
- alilesterase** [BIOCHEM] Any one of the lipases or nonspecific esterases. { 'al-ē's-ter-ās }
- aligning drift** [MECH ENG] A rod or bar that is used for aligning parts during assembly. { ə'lɪn-ɪŋ 'drɪft }
- alignment** [ARCHEO] An arrangement of a single row or of multiple rows of standing stones at a sites formerly occupied by humans. [CIV ENG] In a survey for a highway, railroad, or similar installation, a ground plan that shows the horizontal direction of the route. [ELECTR] The process of adjusting components of a system for proper interrelationship, including the adjustment of tuned circuits for proper frequency response and the time synchronization of the components of a system. [ENG] Placing of surveying points along a straight line. [MAP] Representing of the correct direction, character, and relationships of a line or feature on a map. [MIN ENG] The act of laying out a tunnel or regulating by line; adjusting to a line. [NUC PHYS] A population  $p(m)$  of the  $2I + 1$  orientational substates of a nucleus;  $m = -I$  to  $+I$ , such that  $p(m) = p(-m)$ . { ə'lɪn-mənt }
- alignment chart** See nomograph. { ə'lɪn-mənt 'tʃɑrt }
- alignment correction** [ENG] A correction applied to the measured length of a line to allow for not holding the tape exactly in a vertical plane of the line. { ə'lɪn-mənt kə'rek-shən }
- alignment pin** [DES ENG] Pin in the center of the base of an ocular, loctal, or other tube having a single vertical projecting

the starting winding when the motor has almost reached synchronous speed. { 'sen'trif-i-gəl 'swich }

**centrifugal tachometer** [MECH ENG] An instrument which measures the instantaneous angular speed of a shaft by measuring the centrifugal force on a mass rotating with it. { 'sen'trif-i-gəl təkəm-əd-ər }

**centrifugation potentials** [PHYS CHEM] Electric potential differences between points at different distances from the axis of rotation of a colloidal solution that is being rapidly rotated in a centrifuge. { 'sen'trif-ə-gā-shən pə'ten-čhəlz }

**centrifuge** [MECH ENG] 1. A rotating device for separating liquids of different specific gravities or for separating suspended colloidal particles, such as clay particles in an aqueous suspension, according to particle-size fractions by centrifugal force. 2. A large motor-driven apparatus with a long arm, at the end of which human and animal subjects or equipment can be revolved and rotated at various speeds to simulate the prolonged accelerations encountered in rockets and spacecraft. { 'sen-trə,fyūj }

**centrifuge microscope** [OPTICS] An instrument which permits magnification and observation of living cells being centrifuged; image of the material magnified by the objective which rotates near the periphery of the centrifuge head is brought to the axis of rotation where it is observed in a stationary ocular. { 'sen-trə,fyūj 'mī-krə'skəp }

**centrifuge refining** [CHEM ENG] The use of centrifuges for liquids processing, such as separation of solids or immiscible droplets from liquid carriers, or for liquid-liquid solvent extraction. { 'sen-trə,fyūj rī'fīn-īŋ }

**centrifuge tube** [ANALY CHEM] Calibrated, tube-shaped glass container used with laboratory centrifuges for volumetric analysis of separable (solid-liquid or immiscible liquid) samples. { 'sen-trə,fyūj tūb }

**centrilobular emphysema** [MED] A disorder marked by pulmonary inflation, primarily affecting the respiratory bronchioles and usually more severe in the upper lobes. { 'sen-trə'lə-byə-lər əm-fə'sē-mə }

**centriole** [CYTOL] A complex cellular organelle forming the center of the centrosome in most cells; usually found near the nucleus in interphase cells and at the spindle poles during mitosis. { 'sen-trē-əl }

**centripetal** [MECH] Acting or moving in a direction toward the axis of rotation or the center of a circle along which a body is moving. { 'sen'trip-əd-əl }

**centripetal acceleration** [MECH] The radial component of the acceleration of a particle or object moving around a circle, which can be shown to be directed toward the center of the circle. Also known as radial acceleration. { 'sen'trip-əd-əl ik'sel-ə'rā-shən }

**centripetal force** [MECH] The radial force required to keep a particle or object moving in a circular path, which can be shown to be directed toward the center of the circle. { 'sen'trip-əd-əl fōrs }

**centrobaric** [MECH] 1. Pertaining to the center of gravity, or to some method of locating it. 2. Possessing a center of gravity. { 'sen-trə'bar-ik }

**centroclinal** [GEOL] Referring to geologic strata dipping toward a common center, as in a structural basin. { 'sen-trə'klīn-əl }

**centrode** [MECH] The path traced by the instantaneous center of a plane figure when it undergoes plane motion. { 'sen,tro'd }

**Centrohelida** [INV ZOO] An order of protozoans in the subclass Heliozoia lacking a central capsule and having axopodia or filopodia; and siliceous scales and spines. { 'sen-trə'hel-ə-də }

**centroid** See center of area; center of mass; center of volume. { 'sen,tro'id }

**centroid of asymptotes** [CONT SYS] The intersection of asymptotes in a root-locus diagram. { 'sen,tro'id əv 'as-əm,təd-əz }

**centroids of areas and lines** [MATH] Points positioned identically with the centers of gravity of corresponding thin homogeneous plates or thin homogeneous wires; involved in the analysis of certain problems of mechanics such as the phenomenon of bending. { 'sen,tro'idz əv 'er-ē-əz ən 'līnz }

**centroecithal ovum** [CYTOL] An egg cell having the yolk centrally located; occurs in arthropods. { 'sen-tro'les-ə-thəl 'ō-vəm }

**Centrolenidae** [VERT ZOO] A family of arboreal frogs in the suborder Procoela characterized by green bones. { 'sen-trə'len-ə,də }

**centromere** [CYTOL] A specialized chromomere to which the spindle fibers are attached during mitosis. Also known as kinetochore; kinomere; primary constriction. { 'sen-trə,mīr }

**centromere distance** [GEN] The distance of a gene from a centromere, measured in terms of recombination frequency. { 'sen-trə,mīr ,dis-təns }

**centromere effect** [GEN] The reduced level of genetic recombination shown by genetic loci close to the centromere. { 'sen-trə,mīr i,fekt }

**centromere shift** [GEN] A type of chromosomal defect in which the centromere changes position during chromosomal rearrangement in the G1 phase of the cell cycle. { 'sen-trə,mīr ,shift }

**Centronellidina** [PALEON] A suborder of extinct articulate brachiopods in the order Terebratulida. { 'sen-trə'nə'līd-ən-ə }

**centrosome** [CYTOL] A spherical hyaline region of the cytoplasm surrounding the centriole in many cells; plays a dynamic part in mitosis as the focus of the spindle pole. { 'sen-trə,səm }

**centrosome cycle** [CELL MOL] Duplication of the centrosome during interphase (S phase) of the animal cell cycle followed by separation of the resulting centrioles and associated microtubules at the beginning of mitosis to form the poles of the mitotic spindle. Following mitosis, each daughter cell has a new centrosome in association with its chromosomes. { 'sen-trə,səm ,sī-kəl }

**Centrospermales** [BOT] An equivalent name for the Caryophyllales. { 'sen-trə'spər,mē }

**Centrospermales** [BOT] An equivalent name for the Caryophyllales. { 'sen-trə'spər'mā-lēz }

**centrosphere** [CYTOL] The differentiated layer of cytoplasm immediately surrounding the centriole. [GEOL] The central core of the earth. Also known as the barysphere. { 'sen-trə,sfir }

**centrosymmetry** [PHYS] Property of a body or system which is unchanged under space inversion through a specified point. { 'sen-trə'sim-ə-trē }

**centrum** [ANAT] The main body of a vertebra. [BOT] The central space in hollow-stemmed plants. { 'sen-trəm }

**century date** [HOROL] The number of days that have elapsed in the century, that is, since January 1, 1900. { 'sen-čhə-rē ,dāt }

**Cen X-3** See Centaurus X-3.

**Cep** See Cepheus.

**CEPHA** See ethephon. { 'sef-ə }

**cephaline** [ORG CHEM] C<sub>14</sub>H<sub>19</sub>O<sub>2</sub>N An alkaloid, slightly soluble in water, extracted from the root of ipecac; used as an emetic. { sə'fə-ə,lēn }

**cephalgia** [MED] Headache or head pain. { 'sef-ə'lal-jə }

**Cephalaspida** [PALEON] An equivalent name for the Osteostraci. { 'sef-ə'las-pə-də }

**Cephalaspidomorphi** [VERT ZOO] An equivalent name for Monorhina. { 'sef-ə'las-pə-də'mōr-fī }

**cephalic** [ZOO] Of or pertaining to the head or anterior end. { sə'fal-ik }

**cephalic index** [ANTHRO] The ratio of maximum breadth to maximum length of the head multiplied by 100. { sə'fal-ik 'īn,deks }

**cephalic module** [ANTHRO] A measure of absolute head size derived by averaging the length, breadth, and auricular height of the head. { sə'fal-ik 'māj-ūl }

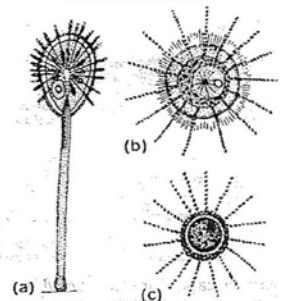
**cephalic vein** [ANAT] A superficial vein located on the lateral side of the arm which drains blood from the radial side of the hand and forearm into the axillary vein. { sə'fal-ik 'vān }

**cephalin** [BIOCHEM] Any of several acidic phosphatides whose composition is similar to that of lecithin but having ethanolamine, serine, and inositol instead of choline; found in many living tissues, especially nervous tissue of the brain. { 'sef-ə-lən }

**Cephalina** [INV ZOO] A suborder of protozoans in the order Eugregarinida that are parasites of certain invertebrates. { 'sef-ə'lī-nə }

**cephalization** [ZOO] Anterior specialization resulting in the

## CENTROHELIDA



Some Centrohelida species.  
(a) *Actinolophus pedunculatus*, sessile on Bryozoa.  
(b) *Heterophrys myriopoda*.  
(c) *Pompholyxophrys punicea*.  
(From R. P. Hall, *Protozoology*, Prentice-Hall, 1953)

known as transmission mode. [PETR] The mineral composition of a rock, usually expressed as percentages of total weight or volume. [PHYS] A state of an oscillating system that corresponds to a particular field pattern and one of the possible resonant frequencies of the system. [STAT] The most frequently occurring member of a set of numbers. { 'mōd }

**mode converter** See mode transducer. { 'mōd kən,vərd-ər }

**mode eddies** [OCEANOGR] Densely packed, irregularly oval high- and low-pressure centers roughly 240 miles (400 kilometers) in diameter in which current intensities are typically tenfold greater than the local means. Also known as mesoscale eddies. { 'mōd ,ed-ēz }

**mode filter** [ELECTROMAG] A waveguide filter designed to separate waves of the same frequency but of different transmission modes. { 'mōd ,fil-tər }

**mode jump** [ELECTR] Change in mode of magnetron operation from one pulse to the next; each mode represents a different frequency and power level. { 'mōd ,jəmp }

**model** [COMPUT SCI] See macroskeleton. [SCI TECH] A mathematical or physical system, obeying certain specified conditions, whose behavior is used to understand a physical, biological, or social system to which it is analogous in some way. { 'mād-əl }

**model atmosphere** [METEOROL] Any theoretical representation of the atmosphere, particularly of vertical temperature distribution. { 'mād-əl ,at-mə,sfır }

**model-based expert system** [COMPUT SCI] An expert system that is based on knowledge of the structure and function of the object for which the system is designed. { 'mād-əl ,bāst 'ek-spərt ,sis-təm }

**model basin** [ENG] A large basin or tank of water where scale models of ships can be tested. Also known as model tank; towing tank. { 'mād-əl 'bās-ən }

**model-following problem** [CONT SYS] The problem of determining a control that causes the response of a given system to be as close as possible to the response of a model system, given the same input. { 'mād-əl ,fāl-ə-wij ,prəb-ləm }

**mode-locked laser** [OPTICS] A laser designed so that several modes of oscillation with closely spaced wavelengths, in which the laser would normally oscillate, are synchronized so that a pulse of light, lasting for as little as a picosecond, is generated. { 'mōd ,lākt 'lā-zər }

**model reduction** [CONT SYS] The process of discarding certain modes of motion while retaining others in the model used by an active control system, in order that the control system can compute control commands with sufficient rapidity. { 'mād-əl rı'dak-shən }

**model reference system** [CONT SYS] An ideal system whose response is agreed to be optimum; computer simulation in which both the model system and the actual system are subjected to the same stimulus is carried out, and parameters of the actual system are adjusted to minimize the difference in the outputs of the model and the actual system. { 'mād-əl ,ref-rəns ,sis-təm }

**model symbol** [COMPUT SCI] The standard usage of geometrical figures, such as squares, circles, or triangles, to help illustrate the various working parts of a model; each symbol must, nevertheless, be footnoted for complete clarification. { 'mād-əl ,sım-bəl }

**model tank** See model basin. { 'mād-əl ,təŋk }

**model theory** [MATH] The general qualitative study of the structure of a mathematical theory. { 'mād-əl ,thē-ə-rē }

**modem** [ELECTR] A combination modulator and demodulator at each end of a telephone line to convert binary digital information to audio tone signals suitable for transmission over the line, and vice versa. Also known as dataset. Derived from modulator-demodulator. { 'mō ,dem }

**modem eliminator** [COMPUT SCI] A device that is used to connect two computers in proximity and that mimics the action of two modems and a telephone line. { 'mō ,dem ə'lim-ə ,nād-ər }

**mode number** [ELECTR] 1. The number of complete cycles during which an electron of average speed is in the drift space of a reflex klystron. 2. The number of radians of phase in the microwave field of a magnetron divided by  $2\pi$  as one goes once around the anode. { 'mōd ,nəm-bər }

**mode of oscillation** See mode of vibration. { 'mōd əv ,is-ə'lä-shən }

**mode of vibration** [MECH] A characteristic manner in which

a system which does not dissipate energy and whose motions are restricted by boundary conditions can oscillate, having a characteristic pattern of motion and one of a discrete set of frequencies. Also known as mode of oscillation. { 'mōd əv vı'brā-shən }

**moder** [GEOL] Humus consisting of plant material that is undergoing alteration from the living to the decayed state and is intermediate in acidity between mor and mull. { 'mōd-ər }

**moderate breeze** [METEOROL] In the Beaufort wind scale, a wind whose speed is from 11 to 16 knots (13 to 18 miles per hour or 20 to 30 kilometers per hour). { 'mād-ə-rət 'brēz }

**moderate gale** [METEOROL] In the Beaufort wind scale, a wind whose speed is from 28 to 33 knots (32 to 38 miles per hour or 52 to 61 kilometers per hour). { 'mād-ə-rət 'gāl }

**moderator** [NUCLEO] The material used in a nuclear reactor to moderate or slow down neutrons from the high velocities at which they are created in the fission process. { 'mād-ə ,rād-ər }

**modern algebra** [MATH] The study of algebraic systems such as groups, rings, modules, and fields. { 'mād-əm 'al-jə-brə }

**modern control** [CONT SYS] A control system that takes account of the dynamics of the processes involved and the limitations on measuring them, with the aim of approaching the condition of optimal control. { 'mād-əm kən'trōl }

**Mode S** [NAV] An augmentation of the Air Traffic Control Radar Beacon System in which each aircraft is equipped with a transponder that replies when interrogated with a discrete identity code. Also known as ADSEL (in Britain); discrete address beacon system or DABS (in the United States). { 'mōd 'es }

**mode shift** [ELECTR] Change in mode of magnetron operation during a pulse. { 'mōd ,shift }

**mode skip** [ELECTR] Failure of a magnetron to fire on each successive pulse. { 'mōd ,skip }

**mode switch** [COMPUT SCI] A preset control which affects the normal response of various components of a mechanical desk calculator. [ELECTR] A microwave control device, often consisting of a waveguide section of special cross section, which is used to change the mode of microwave power transmission in the waveguide. { 'mōd ,swıch }

**mode transducer** [ELECTR] Device for transforming an electromagnetic wave from one mode of propagation to another. Also known as mode converter; mode transformer. { 'mōd tranz ,dü-sər }

**mode transformer** See mode transducer. { 'mōd tranz ,fōr-mər }

**MODFET** See high-electron-mobility transistor. { 'mād ,fet }

**modification** [CELL MOL] In nucleic acid metabolism, any changes made to deoxyribonucleic acid or ribonucleic acid after their original incorporation into a polynucleotide chain. [ENG] A major or minor change in the design of an item, effected in order to correct a deficiency, to facilitate production, or to improve operational effectiveness. [MET] Treatment of molten aluminum alloys containing 8-13% silicon with small amounts of a sodium fluoride or sodium chloride mixture; improves mechanical properties. [SCI TECH] Any change brought about by external or internal factors. { 'mād-ə fə'kā-shən }

**modification kit** [ENG] A collection of items not all having the same basic name which are employed individually or conjunctively to alter the design of a component or equipment. { 'mād-ə fə'kā-shən ,kit }

**modified asphalt** [MATER] Asphalt modified by addition of a rosin ester or synthetic resin. { 'mād-ə ,fıd 'as ,fōlt }

**modified base** [CELL MOL] A nucleotide that is an altered form of the usual four nucleic acid bases. { 'mād-ə ,fıd 'bās }

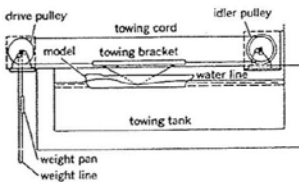
**modified Bessel equation** [MATH] The differential equation  $z^2 f''(z) + z f'(z) - (z^2 + n^2) f(z) = 0$ , where  $z$  is a variable that can have real or complex values and  $n$  is a real or complex number. { 'mōd-ə ,fıd 'bes-əl i ,kwā-zhən }

**modified Bessel function of the first kind** See modified Bessel function. { 'mād-ə ,fıd 'bes-əl ,fəŋk-shən əv ðə 'fɔrst ,kınd }

**modified Bessel function of the second kind** See modified Hankel function. { 'mād-ə ,fıd 'bes-əl ,fəŋk-shən əv ðə 'sek-ənd ,kınd }

**modified Bessel functions** [MATH] The functions defined by  $I_\nu(x) = \exp(-i\nu\pi/2) J_\nu(ix)$ , where  $J_\nu$  is the Bessel function of order  $\nu$ , and  $x$  is real and positive. Also known as modified

### MODEL BASIN



Model basin with model towed by falling weight.

**signaling cell** [PHYSIO] A cell whose products induce a specific response in target cells. { 'sig-nə-liŋ ,sɛl }

**signaling key** See key. { 'sig-nə-liŋ ,kɛ }

**signaling rate** [COMMUN] The rate at which signals are transmitted. { 'sig-nə-liŋ ,ræt }

**signal intensity** [COMMUN] The electric-field strength of the electromagnetic wave transmitting a signal. { 'sig-nəl in,tensəd-ē }

**signal level** [COMMUN] The difference between the level of a signal at a point in a transmission system and the level of an arbitrarily specified reference signal. { 'sig-nəl ,lev-əl }

**signal light** [COMMUN] A light specifically designed for the transmission of code messages by means of visible light rays that are interrupted or deflected by electric or mechanical means. [ENG] A signal, illumination, or any pyrotechnic light used as a sign. { 'sig-nəl ,lit }

**signal molecule** [BIOCHEM] A molecule produced by a signaling cell. { 'sig-nəl ,mäl-ə ,kyül }

**signal normalization** See signal standardization. { 'sig-nəl ,nɔr-mə-lə'zā-shən }

**single nucleotide polymorphism** [GEN] A single base-pair difference between two copies of a deoxyribonucleic acid sequence from two individuals. Abbreviated SNP. { 'siŋ-gəl ,nū-kle-ə ,tɪd ,päl-ē'mɔr-fiz-əm }

**signal out of band** [COMMUN] To send control signals at frequencies outside the frequency range of the data signal. { 'sig-nəl aūt əv ,bænd }

**signal processing** [COMMUN] The extraction of information from complex signals in the presence of noise, generally by conversion of the signals into digital form followed by analysis using various algorithms. Also known as digital signal processing (DSP). { 'sig-nəl ,prə'ses-iŋ }

**signal-recognition particle** [CELL MOL] A ribonucleoprotein consisting of a ribonucleic acid (RNA) molecule and six distinct peptide chains that recognizes the signal sequence of a partially synthesized protein and guides it along with its ribosome to a signal recognition particle receptor in the endoplasmic reticulum. Abbreviated SRP. { 'sig-nəl rek-ig'nish-ən ,pär-d-i-kəl }

**signal regeneration** [COMMUN] The restoration of a waveform representing a signal to approximate its original amplitude and shape. Also known as signal reshaping. { 'sig-nəl rɛ,ʒen-ə'rā-shən }

**signal reporting code** See radio-signal reporting code. { 'sig-nəl ri'pɔrd-iŋ ,kɔd }

**signal reshaping** See signal regeneration. { 'sig-nəl rɛ,ʃəp-iŋ }

**signal rocket** [ORD] A rocket that gives off some characteristic color or display which has a meaning according to an established code. { 'sig-nəl ,ræk-ət }

**signal sequence** [CELL MOL] A discrete sequence of amino acids in a protein that serves to identify it to transport mechanisms within a cell so as to guide the protein to its destination. { 'sig-nəl ,sē-kwəns }

**signal-shaping network** [ELECTR] Network inserted in a telegraph circuit, usually at the receiving end, to improve the waveform of the code signals. { 'sig-nəl ,ʃhəp-iŋ ,net ,wɜrk }

**signal speed** [COMMUN] The rate at which code elements are transmitted by a communications system. { 'sig-nəl ,spɛd }

**signal standardization** [COMMUN] The use of one signal to generate another which meets specified requirements for shape, amplitude, and timing. Also known as signal normalization. { 'sig-nəl ,stænd-ə-də'zā-shən }

**signal station** [COMMUN] A place on shore at which signals are made to ships at sea. { 'sig-nəl ,stā-shən }

**signal strength** [ELECTROMAG] The strength of the signal produced by a radio transmitter at a particular location, usually expressed as microvolts or millivolts per meter of effective receiving antenna height. { 'sig-nəl ,strɔŋkθ }

**signal-strength meter** [ELECTR] A meter that is connected to the automatic volume-control circuit of a communication receiver and calibrated in decibels or arbitrary S units to read the strength of a received signal. Also known as S meter; S-unit meter. { 'sig-nəl ,strɔŋkθ ,mɛd-ər }

**signal-to-interference ratio** [ELECTR] The relative magnitude of signal waves and waves which interfere with signal-wave reception. { 'sig-nəl tū ,in-tər'fir-əns ,rā-shō }

**signal-to-noise improvement factor** See noise improvement factor. { 'sig-nəl tə 'nɔiz im'pru:v-mənt ,fak-tər }

**signal-to-noise ratio** [ELECTR] The ratio of the amplitude of a desired signal at any point to the amplitude of noise signals at that same point; often expressed in decibels; the peak value is usually used for pulse noise, while the root-mean-square (rms) value is used for random noise. Abbreviated S/N; SNR. { 'sig-nəl tə 'nɔiz ,rā-shō }

**signal tower** [CIV ENG] A switch tower from which railroad signals are displayed or controlled. { 'sig-nəl ,tau-ər }

**signal tracer** [ELECTR] An instrument used for tracing the progress of a signal through a radio receiver or an audio amplifier to locate a faulty stage. { 'sig-nəl ,trās-ər }

**signal transduction** [CELL MOL] The relaying of molecular signals (for example, as contained in a hormone) or physical signals (for example, sensory stimuli) from a cell's exterior to its intracellular response mechanisms. { 'sig-nəl tranz,dək-ʃən }

**signal voltage** [ELEC] Effective (root-mean-square) voltage value of a signal. { 'sig-nəl ,vɔl-tiʒ }

**signal wave** [COMMUN] A wave whose characteristics permit some intelligence, message, or effect to be conveyed. Also known as signal. { 'sig-nəl ,wæv }

**signal-wave envelope** [COMMUN] Contour of a signal wave which is composed of a series of wave cycles. { 'sig-nəl ,wæv 'en-və,lɔp }

**signal winding** [ELEC] Control winding, of a saturable reactor, to which the independent variable (signal wave) is applied. { 'sig-nəl ,wɪnd-iŋ }

**sign-and-magnitude code** [COMPUT SCI] The representation of an integer  $X$  by  $(-1)^a (2^{n-2} a_1 + 2^{n-3} a_2 + \dots + a_{n-1})$ , where  $a_0$  is 0 for  $X$  positive, and  $a_0$  is 1 for  $X$  negative, and any  $a_i$  is either 0 or 1. { 'sɪn ən 'mæg-nə,tɪd ,kɔd }

**signature** [ELECTR] The characteristic pattern of a target as displayed by detection and classification equipment. [GRAPHICS] A folded, printed sheet, usually consisting of 16 or 32 pages, that forms a section of a book or a pamphlet; the sheet may have fewer pages, but is always in multiples of four. [MATH] 1. For a quadratic or Hermitian form, the number of positive coefficients minus the number of negative coefficients when the form is reduced by a linear transformation to a sum of squares of absolute values. 2. For a symmetric or Hermitian matrix, the number of positive entries minus the number of negative entries when the matrix is transformed to diagonal form. [NAV ARCH] The graphic record of the magnetic properties of a vessel automatically traced as the vessel passes over the sensitive element of a recording instrument; more accurately called magnetic signature. [ORD] The identifying characteristics peculiar to each type of target which enable detecting apparatus, such as certain fuses, to sense and differentiate targets. [QUANT MECH] A quantum number  $\alpha$  that characterizes a system with the symmetry of a prolate or oblate spheroid and satisfies the equation  $r = \exp(-i\alpha\theta)$ , where  $r$  is the eigenvalue of the system under a rotation through  $180^\circ$  about an axis perpendicular to the symmetry axis. { 'sig-nə-ʃɛr }

**sign bit** [COMPUT SCI] A sign digit consisting of one bit. { 'sɪn ,bit }

**sign check indicator** [COMPUT SCI] An error-checking device, indicating no sign or improper signing of a field used for arithmetic processes; the machine can, upon interrogation, be made to stop or enter into a correction routine. { 'sɪn 'tʃek 'in-də,kæd-ər }

**sign convention** [OPTICS] A convention as to which quantities, such as angles, distances, and radii of curvature, are positive and which are negative in computations involving a lens or a mirror. { 'sɪn kən'ven-ʃən }

**sign digit** [COMPUT SCI] A digit containing one to four binary bits, associated with a data item and used to denote an algebraic sign. { 'sɪn ,dɪʒ-ət }

**signed decimal** [COMPUT SCI] A form of packed decimal representation in which the low-order nibble of the last byte has a sign bit that specifies whether the number is positive or negative. { 'sɪnd 'des-məl }

**signed field** [COMPUT SCI] A field of data that contains a number which includes a sign digit indicating the number's sign. { 'sɪnd 'fɛld }

**signed integer** [COMPUT SCI] A whole number whose value lies anywhere in a domain that extends from a negative to a positive integer, and which therefore carries a sign. { 'sɪnd 'int-ə-ʒər }

**signed measure** [MATH] An extended real-valued function

compute the yield, cement factor, and required quantities of each material. { 'tril 'bæch }

**trial fire** [ORD] Deliberate gunfire laid on a fixed point or target to determine the corrections for firing data. { 'tril 'fir }

**trial pit** [MIN ENG] A shallow hole, 2 to 3 feet (60 to 90 centimeters) in diameter, put down to test shallow minerals or to establish the nature and thickness of superficial deposits and depth to bedrock. { 'tril 'pit }

**trial shots** [ENG] The experimental shots and rounds fired in a sinking pit; tunnel, opencast, or quarry to determine the best drill-hole pattern to use. { 'tril 'shots }

**triamcinolone** [ORG CHEM]  $C_{21}H_{27}FO_6$  White, toxic crystals; insoluble in water, soluble in dimethylformamide; melts at 266°C, used as an intermediate for ion-exchange resin, wetting and frothing agent, and photographic developer. { 'tri-' 'am-' 'sin-' 'ə-' 'lɒn }

**triethylamine** [ORG CHEM]  $(C_2H_5)_3N$  A combustible, colorless, toxic liquid; soluble in gasoline, insoluble in water; used to inhibit corrosion and in insecticides. { 'tri-' 'ə-' 'mil-' 'ə-' 'mɛn }

**triethyl borate** [ORG CHEM]  $(C_2H_5)_3BO_3$  A combustible, colorless liquid with an alcoholic aroma; soluble in alcohol and ether; boils at 220–280°C; used in varnishes. { 'tri-' 'am-' 'əl-' 'bɔ:' 'ræt }

**triandrous** [BOT] Possessing three stamens. { 'tri-' 'an-' 'drɔs }

**triangle** [MATH] The figure realized by connecting three noncollinear points by line segments. { 'tri-' 'æŋ-' 'gəl }

**Triangle** See **Triangulum**. { 'tri-' 'æŋ-' 'gəl }

**triangle cut** [MIN ENG] A zigzag arrangement of drill holes permitting larger openings to be obtained as the drill holes can break out between the preceding row of holes. { 'tri-' 'æŋ-' 'gəl 'kət }

**triangle equation** See **angle equation**. { 'tri-' 'æŋ-' 'gəl i-' 'kwæ-' 'zən }

**triangle inequality** [MATH] For real or complex numbers or vectors in a normed space  $x$  and  $y$ , the absolute value or norm of  $x + y$  is less than or equal to the sum of the absolute values or norms of  $x$  and  $y$ . { 'tri-' 'æŋ-' 'gəl i-' 'n-i-' 'kwæl-' 'ə-' 'dē }

**triangle of forces** [MECH] A triangle, two of whose sides represent forces acting on a particle, while the third represents the combined effect of these forces. { 'tri-' 'æŋ-' 'gəl əv 'fɔ:' 'sɔs }

**triangle of vectors** [MATH] A triangle, two of whose sides represent vectors to be added, while the third represents the sum of these two vectors. { 'tri-' 'æŋ-' 'gəl əv 'vek-' 'tɔ:' }

**triangle of velocities** [NAV] The fundamental triangle associated with dead-reckoning, composed of the following vectors: heading and true airspeed, track and groundspeed, and wind speed and wind direction. { 'tri-' 'æŋ-' 'gəl əv 'vɔ:' 'lɪs-' 'ə-' 'dē }

**triangular space** [MATH] A topological space that is homeomorphic to the set of points that belong to the simplex of a simplicial complex. Also known as polyhedron; topological simplicial complex. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'bəl 'spæs }

**triangular facet** [GEOL] A triangular-shaped steep-sloped hill or cliff formed usually by the erosion of a fault-truncated hill. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'fas-' 'ət }

**triangular ligament** See **urogenital diaphragm**. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'li-' 'g-ə-' 'mɛnt }

**triangular matrix** [MATH] A matrix where either all entries above or all entries below the principal diagonal are zero. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'mæt-' 'rɪks }

**triangular method** [MIN ENG] A method of ore reserve estimation based on the assumption that a linear relationship exists between the grade difference and the distance between all drill holes. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'meth-' 'əd }

**triangular-notch weir** [CIV ENG] A measuring weir with a V-shaped notch for measuring small flows. Also known as V-notch weir. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'nɔ:' 'tʃ 'weɪr }

**triangular numbers** [MATH] The numbers 1, 3, 6, 10, . . . , which are the numbers of dots in successive triangular arrays, and are given by the expression  $(n+1)(n/2)$ , where  $n = 1, 2, 3, \dots$  { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'nəm-' 'bɔ:' }

**triangular prism** [MATH] A prism whose bases are triangles. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'prɪz-' 'əm }

**triangular pulse** [ELECTR] An electrical pulse in which the voltage rises linearly to some value, and immediately falls linearly to the original value. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'pʊls }

**triangular pyramid** [MATH] A pyramid whose base is a triangle. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'pɪr-' 'ə-' 'mɪd }

**triangular wave** [ELECTR] A wave consisting of a series of triangular pulses. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'wæv }

**triangulation** [ENG] A surveying method for measuring a large area of land by establishing a base line from which a network of triangles is built up; in a series, each triangle has at least one side common with each adjacent triangle. [MATH] A decomposition of a topological manifold into subsets homeomorphic with a polyhedron in some Euclidean space. [NAV] Determination of the position of a ship or aircraft by obtaining bearings of the moving object with reference to two fixed radio stations a known distance apart; this gives the values of one side and all angles of a triangle, from which the position can be computed. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'ʃən }

**triangulation mark** [ENG] A bronze disk set in the ground to identify a point whose latitude and longitude have been determined by triangulation. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'ʃən-' 'mɑ:' }

**triangulation problem** [MATH] The problem of whether each topological  $n$  manifold admits a piecewise linear structure. { 'tri-' 'æŋ-' 'gɔ:' 'l-ə-' 'ʃən-' 'prɒ-' 'bləm }

**Triangulum** [ASTRON] A northern constellation, right ascension 2 hours, declination 30°N. Also known as Triangle. { 'tri-' 'æŋ-' 'gɔ:' 'l-əm }

**Triangulum Australe** [ASTRON] A southern constellation, right ascension 16 hours, declination 65°S. Also known as Southern Triangle. { 'tri-' 'æŋ-' 'gɔ:' 'l-əm ə-' 'str-ə-' 'le }

**Triangulum Nebula** [ASTRON] A nebula that is part of a small cluster of galaxies known as the local group; the nebula is labeled M 33. { 'tri-' 'æŋ-' 'gɔ:' 'l-əm-' 'neb-' 'y-ə-' 'lə }

**Triassic** [GEOL] The first period of the Mesozoic era, lying above Permian and below Jurassic, 180–225 million years ago. { 'tri-' 'æ-' 'sɪk }

**triatomic** [CHEM] Consisting of three atoms. { 'tri-' 'ə-' 'tɔ:' 'm-ɪk }

**Triatominae** [INV ZOO] The kissing bugs, a subfamily of hemipteran insects in the family Reduviidae, distinguished by a long, slender rostrum. { 'tri-' 'ə-' 'tɔ:' 'm-ə-' 'n-ē }

**triaxial pinch** [PL PHYS] A device for heating a confined plasma, in which a discharge in an annular space between two concentric cylindrical conductors forms a cylindrical sheet of plasma, and this plasma is then confined and compressed by magnetic fields produced by currents flowing in the axial direction in the discharge itself and in the two conductors. { 'tri-' 'æ-' 'ks-ə-' 'l-' 'pɪntʃ }

**triaxon** [INV ZOO] A spicule in Porifera having three axes which cross each other at right angles. { 'tri-' 'æ-' 'ks-ən }

**triazole** [ORG CHEM] A five-membered chemical ring compound with three nitrogens in the ring; for example,  $C_2H_3N_3$ ; proposed for use as a photoconductor and for copying systems. { 'tri-' 'ə-' 'zɔ:'l }

**tribasic calcium phosphate** See **calcium phosphate**. { 'tri-' 'b-əs-ɪk-' 'kæ-' 'l-s-əm-' 'f-ə-' 's-f-æt }

**tribasic zinc phosphate** See **zinc phosphate**. { 'tri-' 'b-əs-ɪk-' 'zɪŋk-' 'f-ə-' 's-f-æt }

**tribo-** [PHYS] A prefix meaning pertaining to or resulting from friction. { 'tri-' 'b-ɔ:' }

**triboelectricity** See **frictional electricity**. { 'tri-' 'b-ɔ:'-' 'lek-' 'trɪs-' 'ə-' 'd-ē }

**triboelectric series** [ELEC] A list of materials that produce an electrostatic charge when rubbed together, arranged in such an order that a material has a positive charge when rubbed with a material below it in the list, and has a negative charge when rubbed with a material above it in the list. { 'tri-' 'b-ɔ:'-' 'lek-' 'trɪk-' 'sɪr-' 'ɪz }

**triboelectrification** [ELEC] The production of electrostatic charges by friction. { 'tri-' 'b-ɔ:'-' 'lek-' 'tr-ə-' 'f-ə-' 'k-ə-' 'ʃ-ən }

**tribology** [PHYS] The study of the phenomena and mechanisms of friction, lubrication, and wear of surfaces in relative motion. { 'tri-' 'b-ɔ:'-' 'l-ɔ:'- 'j-ē }

**triboluminescence** [ATOM PHYS] Luminescence produced by friction between two materials. { 'tri-' 'b-ɔ:'-' 'l-ɪ-' 'm-ə-' 'nes-' 'ə-' 'ns }

**tribometer** [ENG] A device for measuring coefficients of friction, consisting of a loaded sled subject to a measurable force. { 'tri-' 'b-ɔ:'-' 'm-ət-' 'ɔ:'r }

**tribromoethanol** [PHARM]  $C_2H_3Br_3O$  A white crystalline compound, melting at 79–82°C; used in medicine in anesthesia. Also known as tribromoethyl alcohol. { 'tri-' 'br-ɔ:'-' 'm-ə-' 'et-ɪ-' 'ə-' 'n-ɔ:'l }

**tribromoethyl alcohol** See **tribromoethanol**. { 'tri-' 'br-ɔ:'-' 'm-ə-' 'et-ɪ-' 'əl-' 'ə-' 'l-' 'k-ə-' 'h-ɔ:'l }

TRIASSIC

CENOZOIC	QUATERNARY
	TERTIARY
MESOZOIC	CRETACEOUS
	JURASSIC
	TRIASSIC
PALAEOZOIC	PERMIAN
	CARBONIFEROUS
	MISSISSIPPIAN
	PENNSYLVANIAN
	DEVONIAN
	SILURIAN
	ORDOVICIAN
CAMBRIAN	
PRECAMBRIAN	

Chart showing position of the Triassic period in relation to the other periods and to the eras of geologic time.



generalized *s-t* network. 4. The sum of the weights of all the arcs and vertices in a generalized *s-t* cut. [MECH] 1. The gravitational force with which the earth attracts a body. 2. By extension, the gravitational force with which a star, planet, or satellite attracts a nearby body. { 'wät }

**weight and balance sheet** [AERO ENG] A sheet which records the distribution of weight in an aircraft and shows the center of gravity of an aircraft at takeoff and landing. { 'wät on 'bal-əns, 'shēt }

**weight barometer** [ENG] A mercury barometer which measures atmospheric pressure by weighing the mercury in the column or the cistern. { 'wät bə, rəm-əd-ər }

**weight density** [PHYS] The weight of a body or portion of a body divided by its volume. { 'wät, 'den-səd-ē }

**weighted aggregative index** [STAT] A statistic for a collection of items weighted so as to reflect the relative importance of the items with regard to the overall phenomenon which the index is designed to describe; a price index is an example. { 'wäd-əd, ə-'grə-gəd-iv 'in, dɛks }

**weighted area masks** [COMPUT SCI] In character recognition, a set of characters (each character residing in the character reader in the form of weighted points) which theoretically render all input specimens unique, regardless of the size or style. { 'wäd-əd 'er-ē-ə, 'mæsk }

**weighted average** [STAT] The number obtained by adding the product of  $\alpha_i$  times the *i*th number in a set of *N* numbers for  $i = 1, 2, \dots, N$ , where  $\alpha_i$  are numbers (weights) such that  $\alpha_1 + \alpha_2 + \dots + \alpha_N = 1$ . Also known as weighted mean. { 'wäd-əd 'av-ri:j }

**weighted code** [COMPUT SCI] A method of representing a decimal digit by a combination of bits, in which each bit is assigned a weight, and the value of the decimal digit is found by multiplying each bit by its weight and then summing the results. { 'wäd-əd 'kɔd }

**weighted mean** See weighted average. { 'wäd-əd 'mēn }

**weighted moving average** [STAT] A method used for smoothing data in a time series in which each observation being averaged is given a weight which reflects its relative importance in calculating the average. { 'wäd-əd 'mūv-ɪŋ 'av-ri:j }

**weighted oscillator strength** See gf-value. { 'wäd-əd 'ɔs-ə, 'lɔd-ər, 'strəŋkθ }

**weight factor** [STAT MECH] The number of microstates that correspond to a given macrostate. { 'wät, 'fak-tər }

**weight function** [MATH] 1. Two real valued functions *f* and *g* are orthogonal relative to a weight function  $w$  on an interval if the integral over the interval of  $f \cdot g \cdot w$  vanishes. 2. A function defined on the edges of a network or the arcs of a directed network, whose value at each edge or arc is the unique nonnegative integer assigned to that edge or arc. 3. A function defined on the vertices of a generalized *s-t* network, whose value at each vertex is a nonnegative integer. { 'wät, 'fəŋk-shən }

**weighting** [ENG] The artificial adjustment of measurements to account for factors that, in the normal use of the device, would otherwise be different from conditions during the measurements. [TEXT] The chemical or mechanical process of adding weight or body to a fabric or yarn, especially silk, by the addition of various materials. { 'wäd-ɪŋ }

**weighting network** [ENG ACOUS] One of three or more circuits in a sound-level meter designed to adjust its response; the A and B weighting networks provide responses approximating the 40- and 70-phon equal loudness contours, respectively, and the C weighting network provides a flat response up to 8000 hertz. { 'wäd-ɪŋ, 'net, 'wɜrk }

**weightlessness** [MECH] A condition in which no acceleration, whether of gravity or other force, can be detected by an observer within the system in question. Also known as zero gravity. { 'wät-ləs-nəs }

**weightlessness switch** See zero-gravity switch. { 'wät-ləs-nəs, 'swɪtʃ }

**weight-loaded regulator** [ENG] A pressure-regulator valve for pressure vessels or flow systems; the regulator is preloaded by counterbalancing weights to open (or close) at the upper (or lower) limit of a preset pressure range. { 'wät, 'lɔd-əd 'reg-ya, 'lɔd-ər }

**weight thermometer** [ENG] A glass vessel for determining the thermal expansion coefficient of a liquid by measuring the mass of liquid needed to fill the vessel at two different temperatures. { 'wät, 'θɜr,məm-əd-ər }

**weight titration** [ANALY CHEM] A titration in which the

amount of titrant required is determined in terms of the weight that must be added to reach the end point. { 'wät 'tɪ-trə-shən }

**weight zone** [ORD] A weight range having specified minimum and maximum weights; artillery projectiles of 75-millimeter caliber and larger are sometimes grouped into weight zones and marked with appropriate symbols; the selection of projectiles of a single weight zone for a specific firing problem results in improved ballistic uniformity. { 'wät, 'zɔn }

**Weiland effect** [GRAPHICS] A photographic effect in which a photographic material undergoes greater blackening when exposed at a very high intensity for a short time and then at a lower intensity for a long time than with the reverse sequence. { 'wi-lənd i, 'fekt }

**Weil-Felix test** [IMMUNOL] An agglutination test for various rickettsial infections based on production of nonspecific agglutinins in the blood of infected patients, and using various strains of *Proteus vulgaris* as antigen. { 'vil 'fɛ-lɪks, 'test }

**Weil's disease** [MED] A severe form of leptospirosis characterized by jaundice, oliguria, circulatory collapse, and tendency to hemorrhage. Also known as icterohemorrhagic fever; leptospirosis icterohemorrhagica; spirochetal jaundice. { 'vilz di, 'zɛz }

**Weinberg-Salam theory** [PART PHYS] A gauge theory in which the electromagnetic and weak nuclear interactions are described by a single unifying framework in which both have a characteristic coupling parameter equal to the fine-structure constant; it predicts the existence of intermediate vector bosons and neutral current interactions. Also known as Salam-Weinberg theory. { 'wi:n,bɜrg sə'ləm, 'di-ə-rē }

**Weingarten formulas** [MATH] Equations concerning the normals to a surface at a point. { 'wi:n,gart-ən, 'fɔr-myə-lɔs }

**Weingarten surface** [MATH] A surface such that either of the principal radii is uniquely determined by the other. { 'wi:n,gart-ən, 'sɜr-fəs }

**weinschenite** [MINERAL] 1.  $YPO_3 \cdot 2H_2O$  A white mineral consisting of a hydrous yttrium phosphate. Also known as churchite. 2. A dark-brown variety of homblende high in ferric iron, aluminum, and water. { 'wi:n,ʃen, 'kɪt }

**weir** [CIV ENG] A dam in a waterway over which water flows, serving to regulate water level or measure flow. { 'wer }

**weird number** [MATH] An abundant number that is not a semiperfect number. { 'wi:rd 'nəm-bər }

**weir tank** [PETRO ENG] A type of oil-field storage tank with high- and low-level weir boxes and liquid-level controls for metering the liquid content of the tank. { 'wer, 'tæŋk }

**Weissenberg effect** [FL MECH] An alteration of the normal stresses in a non-Newtonian fluid on account of elasticity, so that such a fluid, when placed between two concentric, rotating cylinders, can rise on the inner cylinder in spite of centrifugal forces. { 'vis-ən,bɜrg i, 'fekt }

**Weissenberg method** [SOLID STATE] A method of studying crystal structure by x-ray diffraction in which the crystal is rotated in a beam of x-rays, and a photographic film is moved parallel to the axis of rotation; the crystal is surrounded by a sleeve which has a slot that passes only diffraction spots from a single layer of the reciprocal lattice, permitting positive identification of each spot in the pattern. { 'vis-ən,bɜrk, 'meth-əd }

**weissite** [MINERAL]  $Cu_2Te_2$  A dark bluish-black mineral consisting of copper telluride; occurs in massive form. { 'wi:st }

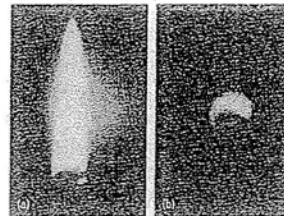
**Weiss magneton** [ATOM PHYS] A unit of magnetic moment, equal to  $1.853 \times 10^{-24}$  joule/tesla, about one-fifth of the Bohr magneton; it is experimentally derived, the magnetic moments of certain molecules being close to integral multiples of this quantity. { 'ves 'mag-nə,tən }

**Weiss molecular field** [SOLID STATE] The effective magnetic field postulated in the Weiss theory of ferromagnetism, which acts on atomic magnetic moments within a domain, tending to align them, and is in turn generated by these magnetic moments. { 'ves mə'lek-yə-lər 'feld }

**Weiss theory** [SOLID STATE] A theory of ferromagnetism based on the hypotheses that below the Curie point a ferromagnetic substance is composed of small, spontaneously magnetized regions called domains, and that each domain is spontaneously magnetized because a strong molecular magnetic field tends to align the individual atomic magnetic moments within the domain. Also known as molecular field theory. { 'ves, 'θe-ə-rē }

**Weisz ring oven** [ANALY CHEM] A device for vaporization

## WEIGHTLESSNESS



Effect of weightlessness on combustion. (a) Flame on Earth is elongated. (b) Flame in space forms a circle because the lack of convection does not allow waste material to flow away from the flame. (NASA)