

# Index

---

## A

- Absolute
  - column, 48-4
  - dynamic viscosity, 22-3
  - pressure, 22-2
  - temperature, 26-4
  - value, 43-1
  - viscosity, 22-3
  - zero temperature, 26-4
- Absorbed dose, radiation, 35-10
- Absorption, dermal, 34-2
- Absorptivity, 31-2
- AC
  - current, 45-1
  - machine, 46-1
- Acceleration
  - angular, 16-2
  - constant, 14-2
  - normal, 14-3, 16-3
  - of gravity, 1-2
  - tangential, 14-3
- Access time, 47-5
- Accumulator, 47-1
- Accuracy, 49-2
- ACGIH, 34-7, 35-6
- Acid, 38-3
  - amino, 38-4 (tbl)
  - Arrhenius theory of, 38-3
  - binary, 37-4
  - carboxylic, 38-5 (tbl)
  - deoxyribonucleic, 33-2
  - diprotic, 38-4
  - fatty, 33-10, 38-5 (tbl)
  - monoprotic, 38-4
  - organic, 38-5 (tbl)
  - properties of, 38-4
  - ribonucleic, 33-2
  - strength of, 38-4
  - ternary, 37-4
  - triprotic, 38-4
  - volatile, 33-10
- Acoustic trauma, 35-9
- Acquired immunodeficiency syndrome, 33-11
- ACRS, 52-1
- Actinide, 37-3
- Actinon, 37-3
- Action
  - galvanic, 42-1
  - line of, 5-5
  - mass, law of, 38-2, 38-3
- Activated sludge, 36-2, 36-3 (tbl)
- Activation energy, 42-3
- Active element, electrical, 44-1
- Actuating signal ratio, 50-1
- Additive effect, law of, 34-8
- Address bus, 47-1
- Adenosine triphosphate, 33-9
- Adenovirus, 33-6
- Adiabatic
  - process, 25-2, 27-1
  - tip, 31-3
- Adjacent side, 4-4
- Adjoint, classical, 5-4
- Admittance, 45-4
- Advantage
  - mechanical, 12-1
  - pulley, 12-1
- Aerobe, obligate, 33-6
- Aerobic
  - decomposition, 33-9
  - digestion, 36-4
- Affinity, electron, 37-3
- Agent
  - oxidizing, 38-1
  - reducing, 38-2
- AI, 48-7
- AIDS, 33-11, 35-16
- Air
  - atmospheric, 29-3
  - atmospheric, enthalpy of, 29-5
  - composition of, 30-2
  - conditioner, 28-4
  - excess, 30-2
  - fuel ratio, 30-2
  - ideal (combustion), 30-1
  - percent excess, 30-2
  - percent theoretical, 30-2
  - properties, 25-2, 26-8
  - saturated, 29-3
  - standard cycle, 28-4
  - stoichiometric, 30-1, 30-2
  - unsaturated, 29-3
- Alcohols
  - aliphatic, 38-5 (tbl)
  - aromatic, 38-5 (tbl)
- Aldehyde, 38-4 (tbl), 38-5 (tbl)
- Algae, 33-8
- Algal bloom, 33-8
- Algebra of complex numbers, 43-1
- Algorithm, 48-1
- Aliphatic alcohol, 38-5 (tbl)
- Alkali metal, 37-3
- Alkaline earth metal, 37-3
- Alkane, 38-4, 38-5 (tbl)
- Alkene, 38-4
- Alkoxy, 38-4 (tbl)
- Alkyl, 38-4 (tbl)
- Alkyl halide, 38-5 (tbl)
- Alkyne, 38-4, 38-5 (tbl)
- Allergen, 35-14
- Allotrope, 42-5
- Allotropic change, 42-5
- Allowable stress, 18-5
- Allowance, trade-in, 51-2
- Alloy
  - binary, 42-3
  - eutectic, 42-4
  - miscible, 42-3
  - solid-solution, 42-3
- Alloying ingredient, 42-3
- Alpha
  - decay, 37-6
  - iron, 42-5
  - particle, 35-10
- Alphanumeric data, 48-1
- Alternating
  - current, 45-1
  - waveform, 45-1
- Alternative comparison, 53-1
- ALU, 47-1
- Alveoli, 34-2, 35-6
- Amagat-Leduc's rule, 29-2
- Amagat's law, 29-2
- Amide, 38-5 (tbl)
- Amine, 38-4 (tbl), 38-5 (tbl)
- Amino acid, 38-4 (tbl), 38-5 (tbl)
- Amplitude, sinusoidal, 45-1
- Amu, 37-1
- Anaerobe, obligate, 33-6
- Anaerobic
  - decomposition, 33-10
  - digester, 36-4
- Analog-digital conversion, 49-4, 49-5
- Analogy
  - Chilton and Colburn, 32-3
  - transport phenomena, 32-3
- Analysis (*see also* Method)
  - benefit-cost, 53-2
  - break-even, 53-2
  - dimensional, 25-4
  - Fourier, 8-2
  - gravimetric, 37-6
  - incremental, 53-2
  - numerical, 9-1
  - present worth, 53-1
  - rate of return, 53-1
  - ultimate, 37-6
- Ancestor node, 48-6
- Angle
  - cone-generating, 4-2
  - of contact, 22-4
  - of twist, 19-3
  - of wrap, 12-2
  - phase, 45-3
  - pitch, 12-2
  - power, 45-5
  - thread friction, 12-2
- Angular
  - acceleration, 16-2
  - distance, 16-2

- frequency, 15-4, 45-2
- momentum, 16-2
- motion, 14-3
- velocity, 16-2
- Anhydride, 38-5 (tbl)
- Anion, 37-3
- Annealing, 42-7
- Annual
  - cost, equivalent uniform, 52-2, 53-1
  - cost method, 53-1
  - effective interest rate, 51-5
  - return method, 53-1
- Annuity, 51-4
- Annum, rate per, 51-5
- Anode, 38-1, 39-3, 42-1
- Anoxic
  - condition, 33-6
  - decomposition, 33-10
  - denitrification, 33-6
- Antiderivative, 7-3
- Apparatus, Golgi, 33-2
- Approach, velocity of, 25-2
- Approximation, Euler's, 8-5
- Aquation, 39-2
- Archimedes' principle, 23-5
- Area
  - centroid of, 13-1, 13-9 (tbl)
  - first moment of, 13-1
  - logarithmic mean, 31-2
  - moment of inertia, 7-4
  - second moment of, 13-2
- Areal density, 47-4
- Argument, 43-1
- Arithmetic
  - and logic unit, 47-1
  - mean, 6-2
  - progression, 5-7
- Arm, moment, 10-2
- Armature, AC machine, 46-3
- Aromatic, 38-5 (tbl)
- Aromatic alcohol, 38-5 (tbl)
- Arrhenius theory
  - of acids, 38-3
  - of bases, 38-4
- Arthropod, 35-14
- Artificial intelligence, 48-7
- Aryl, 38-4 (tbl)
- Aryl halide, 38-5 (tbl)
- Asbestos, 35-6
- Asbestosis, 35-6
- ASCII, 48-1
- Asphyxiant, 35-3
- Assembler, 48-2
- Assembly language, 48-2
- ASTM grain size, 42-8
- Asynchronous transmission, 47-6
- Atmospheric
  - air, 29-3
  - pressure, standard, 22-2, 26-4 (tbl)
- Atom, 37-1
- Atomic
  - bond, 40-4
  - mass unit, 37-1
  - number, 37-1
  - weight, 37-1
- Atoms in a cell, 40-2, 40-3 (tbl)
- ATP, 33-9
- Attractive rate of return, 53-1
- Audible sound, 35-7
- Audiometry, 35-10
- Austempering, 42-7
- Austenite, 42-5
- Autotroph, 33-4, 33-6
- Availability, 28-6
- Average (*see also* Mean)
  - pressure, fluid, 23-3
  - value, sinusoid, 45-2
- Averaging duration, 34-7
- Avogadro's
  - hypothesis, 38-1, 38-3
  - law, 26-7
  - number, 37-6
- Axes, transformation (stress), 18-3
- Axial
  - loading, 21-1
  - strain, 18-1
- Axis
  - conjugate, hyperbola, 4-3
  - ellipse, 4-3
  - neutral, 20-2, 20-3
  - parallel, theorem of, 7-5, 16-1
  - transfer, theorem of, 7-5
  - transverse, hyperbola, 4-3
- B**
- Back-emf, 46-2
- Background processing, 47-6
- Bacteremia, 35-16
- Bacteria, 33-7 (tbl), 33-8
  - bioprocessing, 36-2
  - iron, 33-6
  - nonphotosynthetic, 33-6
- Balance, heat, human body, 35-11
- Bandwidth, 45-6, 50-5
  - closed-loop, 50-5
- Banked curve, 16-3
- Barometer, 23-2
- Barometric pressure, 22-2
- Base, 38-4
  - Arrhenius theory of, 38-4
  - logarithm, 5-1
  - metal, 42-3
  - unit, 1-4
- Basic input/output system, 47-2
- Basis
  - depreciation, 52-1
  - unadjusted, 52-1
- Batch mode, 47-5
- Baud rate, 47-4
- Baudot code, 47-4
- BCC, 40-2
- BCF, 34-7
- Beam, 20-1
  - boundary condition, 20-4
  - column, 21-1
  - composite, 20-4
  - deflection, 20-4
  - shear stress distribution, 20-3
  - steel, 20-4
  - stress in, 20-2
- Behavior, transient, 44-7
- Bell-shaped curve, 6-3
- Belt friction, 12-2
- Bending stress, 20-2
- Bend, pipe, 24-7
- Benefit-cost analysis, 53-2
- Benign tumor, 34-6
- Benzene ring, 38-4 (tbl)
- Bernoulli
  - equation, 24-2, 24-3
  - equation (thermodynamic), 27-3
- Beryllium, exposure to, 35-7
- Beta
  - decay, 37-6
  - particle, radiation, 35-10
- B-field, 43-5
- Bias, 49-2
- Biased estimator, 6-2
- Biaxial loading, 18-2
- Bidding, competitive, 54-3
- Bi-metallic element, 19-2
- Binary
  - acid, 37-4
  - alloy, 42-3
  - compound, 37-4
  - fission, 33-8
  - phase diagram, 42-3
  - tree, 48-5
- Binder, 42-8
- Binomial
  - coefficient, 6-1, 6-3
  - distribution, 6-3
- Biochemical oxygen demand, 33-9, 36-2
- Biocide, 33-8
- Bioconcentration factor, 34-7
- Biological
  - hazard, 35-2, 35-14
  - reaction, 33-11
- Biology, cellular, 33-1
- Biomass composition, 33-11
- Bioprocessing, 36-1
- BIOS, 47-2
- Biotower, 36-4
- Bisection method, 9-1
- Bit, 47-2
- Bit-slice microprocessor, 47-2
- Black
  - body, 31-2
  - lung disease, 35-7
- Blade
  - force on, 24-8
  - velocity, tangential, 24-9
- Block, 47-5
  - and tackle, 12-1
  - diagram algebra, 50-2
- Blood
  - borne pathogen, 35-16
  - cell, 34-3
- BOD, 33-9
  - exerted, 33-10
  - exertion, 36-2
  - loading, 36-4
  - test, 36-2
- Bode plot, 50-5
- Body
  - black, 31-2
  - centered cubic cell, 40-2
  - rigid, 14-1
- Boiler, 27-4

- Boiling point, 26-4  
  constant, 39-3  
  elevation, 39-3
- Bond  
  atomic, 40-4  
  covalent, 37-4, 40-4  
  financial, 52-3  
  ionic, 37-3, 40-4  
  metallic, 40-4  
  nonpolar covalent, 37-4  
  polar covalent, 37-4  
  primary, 40-4  
  secondary, 40-4  
  value, 52-3  
  yield, 52-3
- Bonded  
  exponential growth curve, 33-4  
  strain gage, 49-2
- Book value, 52-2
- Bootstrap loader, 47-2
- Botulism, 35-16
- Boundary  
  condition, beam, 20-4  
  system, 27-2
- Box, closed, 19-3
- Boyle's law, 25-2, 27-2
- Braced column, 21-2
- Brake pump power, 25-2
- Bravais lattice, 40-1
- Breakaway point, 50-6
- Break-even  
  analysis, 53-2  
  quantity, 53-2
- Breaking strength, 41-3
- Breakthrough time, 35-5
- Bridge  
  truss, 11-1  
  Wheatstone, 49-3
- Brinell test, 42-7
- British thermal unit, 26-5
- Brittle material, 18-5, 41-3
- Btu, 26-5
- Bubble sort, 48-5
- Buckingham  $\pi$ -theorem, 25-5
- Buckling  
  column, 21-2  
  load, 21-2
- Buffer, 47-4
- Bulk velocity, 24-4
- Buoyancy  
  center of, 23-4  
  theorem, 23-4
- Buoyant force, 23-5
- Bus, 47-1
- Byte, 47-2
- C**
- Cable, ideal, 12-1
- Cache memory, 47-2
- Calculus, 7-1  
  fundamental theorem of, 7-3  
  integral, 7-3
- Cancer risk, excessive lifetime, 34-6
- Canon, 54-1
- Capacitance, 44-2, 44-3
- Capacitive reactance, 45-4
- Capacitor, 44-2  
  ideal, 45-4
- Capacity  
  carrying, 33-4  
  heat, 26-5, 26-6 (tbl), 26-7 (tbl)
- Capillary action, 22-4
- Capitalized cost, 52-2
- Capital recovery method, 53-1
- Carbide, 42-5
- Carbinol, 38-4 (tbl)
- Carbohydrate, 38-5 (tbl)
- Carbonyl, 38-4 (tbl)
- Carboxylic acid, 38-5 (tbl)
- Carcinogen, 34-5, 34-6  
  potency factor, 34-6
- Cardiotoxicity, 34-3
- Carnot cycle  
  power, 28-2  
  refrigeration, 28-5
- Carpal Tunnel Syndrome, 35-13
- Carrying capacity, 33-4
- Cartesian  
  triad, 5-5  
  unit vector, 5-5
- Cash flow, 51-1  
  diagram, 51-1  
  gradient series, 51-2  
  single payment, 51-1  
  uniform series, 51-1
- CASRN, 34-6
- Cast iron, 42-5
- Catabolic process, 33-9
- Catalyst, 38-3
- Cathode, 38-1, 39-3, 42-1  
  ray tube, 47-3
- Cation, 37-3
- Cauchy number, 25-5
- Cavitation, 42-2
- CCT curve, 42-7
- Ceiling threshold limit value, 34-8
- Cell  
  body-centered cubic, 40-2  
  crystalline, 40-1  
  cubic, 40-1  
  face-centered, 40-2  
  galvanic, 42-1  
  half-, 42-1  
  hexagonal, 40-1  
  hexagonal close-packed, 40-2  
  membrane, 33-1  
  monoclinic, 40-1  
  number of atoms in, 40-2, 40-3 (tbl)  
  orthorhombic, 40-1  
  red blood, 34-3  
  rhombohedral, 40-1  
  spreadsheet, 48-4  
  structure, 33-1  
  structural, 11-1  
  tetragonal, 40-1  
  transport, 33-3  
  triclinic, 40-1  
  unit, 40-1  
  voltaic, 42-1
- Cellular biology, 33-1
- Cementite, 42-5
- Center  
  instant, 16-2  
  of buoyancy, 23-4  
  of gravity, 13-2  
  of mass, 13-2  
  of pressure, 23-4  
  of rotation, instantaneous, 16-2  
  parabola, 4-2  
  -radius form, 4-4
- Central  
  limit theorem, 6-4  
  nervous system, 34-4  
  processing unit, 47-1  
  tendency, 6-2
- Centrifugal force, 16-3
- Centripetal force, 16-3
- Centroid, 7-4, 13-1, 13-14 (tbl)  
  of a line, 13-1  
  of an area, 13-1, 13-14 (tbl)  
  of a volume, 13-1
- Centroidal  
  mass moment of inertia, 16-1, 16-14 (tbl)  
  moment of inertia, 7-5, 13-2, 13-14 (tbl)
- CFR, 35-3
- cgs system, 1-4
- Change, allotropic, 42-5
- Channel, 47-1
- Characteristic  
  dimension, 24-6  
  equation, 8-1, 50-2
- Characteristics  
  of metals, 37-3  
  of nonmetals, 37-3
- Charge  
  conservation, 43-2  
  line, 43-3  
  sheet, 43-3  
  valence, 37-3
- Charles' law, 27-2
- Charpy test, 41-4
- Chart  
  Moody friction factor, 24-5  
  psychrometric, 29-3, 29-4 (fig)
- Check  
  bit, 47-3  
  digit, 47-6
- Chemical  
  abstract service registry number, 34-6  
  asphyxiant, 35-3  
  formula, 37-4  
  hazard, 35-2  
  reaction, 38-1
- Chemistry  
  inorganic, 38-1  
  organic, 38-4
- Chemotroph, 33-6
- Chiller, 28-4
- Chilton and Colburn analogy, 32-3
- Chloroplast, 33-2
- Chord (truss), 11-1
- Chronic daily intake, 34-6
- Circle  
  degenerate, 4-4  
  general form, 4-4  
  line tangent to, 4-4  
  Mohr's, 18-4

- standard form, 4-4
- unit, 4-5
- Circuit
  - element, linear, 44-3
  - linear, 44-3
- Circular
  - motion, 14-3
  - sector, mensuration, 4-7
  - segment, mensuration, 4-7
- Circumferential stress, 19-2, 19-3
- CISC, 47-2
- Clapeyron equation, 29-5
- Class of noise exposure, 35-9
- Classical adjoint, 5-4
- Clausius
  - inequality, 28-5
  - statement, 28-6
- Clear to send, 47-4
- Client, ethics 54-2
- Clock rate, 47-2
- Closed
  - box, 19-3
  - cup flash point, 35-5
  - feedwater heater, 27-4
  - system, 27-2
- Closed-loop
  - bandwidth, 50-5
  - gain, 50-2
  - transfer function, 50-2
- Close-packed, hexagonal, 40-2
- Coal dust, exposure to, 35-7
- Code
  - ethical, 54-1
  - of Federal Regulations, 35-3
- Coding, data, 48-1
- Coefficient
  - binomial, 6-1, 6-3
  - constant, 8-1
  - diffusion, 42-3
  - drag, 24-10
  - end-restraint, 21-2, 21-3 (tbl)
  - flow (meter), 25-4
  - Fourier, 8-2
  - Hazen-Williams, roughness, 24-10
  - heat transfer, film, 32-2
  - loss, 24-6
  - Manning's roughness, 24-10
  - mass transfer, 32-3
  - matrix, 5-5
  - of contraction, 25-3
  - of discharge, 25-4
  - of friction, 12-2, 15-2
  - of performance, 28-5
  - of resistance, thermal, 44-2, 49-2
  - of restitution, 17-3
  - of thermal expansion, 19-1, 19-2 (tbl)
  - of variation, 6-3
  - of velocity, 25-3
  - partition, 33-3
  - undetermined, method of, 7-4, 8-2
  - yield, 33-11
- Cofactor
  - expansion by, 5-4
  - matrix, 5-4
- Coherent system of units, 1-2 (ftn)
- Cold
  - stress, 35-11, 35-12
  - working, 42-6
- Coliform, 33-9
- Collector ring, 46-2
- Collision, 17-2
- Column, 21-1
  - braced, 21-2
  - effective length, 21-2
  - long, 21-1
- Combination, 6-1
- Combined
  - sound sources, 35-8
  - stress, 18-3
- Combining weight, 37-6
- Combustible liquid, 35-5
- Combustion, 30-1
  - complete, 30-2
  - incomplete, 30-2
  - reaction, 30-1
- Comfort zone, temperature, 35-11
- Command
  - set, 47-1
  - value, 50-7
- Common
  - difference, 5-7
  - logarithm, 5-1
  - ratio, 5-7
- Communication protocol, 47-6
- Commutator, 46-3
- Comparator, 50-1
- Comparison, alternative, 53-1
- Competitive bidding, 54-3
- Compiler, 48-2
- Complementary
  - equation, 8-2
  - probability, 6-1
- Complete combustion, 30-2
- Complex
  - conjugate, 5-2, 43-2, 45-4
  - Goldi, 33-2
  - instruction-set computing, 47-2
  - number, 5-1, 43-1
  - number, algebra, 43-2
  - plane, 43-1
  - power, 45-5
  - power vector, 45-5
- Component
  - normal, 15-3
  - radial, 14-2, 15-3
  - tangential, 14-3, 15-3
  - transverse, 14-2
- Composite
  - beam, 20-4
  - link, 47-4
  - material, 42-8
- Composition
  - air, 30-2
  - biomass, 33-11
  - eutectic, 42-4
- Compound, 37-1, 37-4
  - binary, 37-4
  - continuous, 51-6
  - interest, 51-5
  - non-annual, 51-5
  - organic, 38-4
  - probability, 6-1
  - ternary, 37-4
- Compounds, naming, 37-5
- Compression ratio, 28-4
- Compressor, 27-4
- Computer
  - architecture, 47-1
  - memory, 47-2
- Concentration
  - gradient, 32-3
  - gradient, defect, 42-3
  - ionic, 38-4
  - legal, 34-5
  - units of, 39-1
- Concentrator, 47-4
- Concentric loading, 21-1
- Concurrent forces, 10-3
- Condenser, 27-4
- Condition
  - beam boundary, 20-4
  - standard scientific, 38-3
- Conditional probability, 6-1
- Conductance, 45-4
- Conduction, 31-1
- Cone
  - generating angle, 4-2
  - right circular, mensuration, 4-7
- Confidence
  - interval, 6-4
  - level, 6-4
  - limit, 6-4
- Configuration factor, 31-3
- Congenital syphilis, 35-16
- Conic section, 4-2
- Conjugate
  - axis, hyperbola, 4-3
  - complex, 5-2, 45-4
- Conservation
  - energy, principle, 17-2
  - of charge, 43-2
  - of energy (fluid), 24-3
  - of mass (fluid), 24-1
  - of momentum, law, 15-1
- Consistency index, 22-3, 24-4
- Consistent
  - deformations, 20-4
  - units, 1-2
- Constant
  - acceleration, 14-2
  - boiling point, 39-3
  - coefficient, 8-1
  - entropy process, 27-1
  - equilibrium, 38-3
  - freezing point, 39-3
  - gas, 38-3
  - gravitational, 1-2
  - Henry's law, 29-2
  - Joule's, 26-5
  - lattice, 40-2
  - logistic growth rate, 33-4
  - of integration, 7-3
  - pressure process, 27-1-27-3
  - pressure, specific heat at, 25-2
  - proportions, law of, 37-5
  - specific gas, 25-2, 26-7
  - spring, 17-2

- Stefan-Boltzmann, 31-3  
 temperature process, 27-1, 27-3  
 torsional spring, 19-3  
 time, 44-7  
 universal gas, 25-2, 26-7 (tbl), 38-3  
 volume process, 27-1, 27-2  
 volume, specific heat at, 25-2
- Constants, fundamental, 2-1
- Contact, angle of, 22-4
- Container label, 35-3
- Continuity equation, 24-1
- Continuous  
 compounding, 51-6  
 distribution, 6-2  
 noise, 35-9  
 random variable, 6-3
- Continuum, 22-1
- Contracta, vena, 25-3
- Contraction  
 coefficient, 25-3  
 pipe, 24-6
- Contraflexure point, 7-1
- Control  
 character, 48-1  
 element, 50-7  
 logic block diagram, 50-7  
 logic diagram, 50-7  
 mass, 27-2  
 matrix, 50-7  
 ratio, 50-2  
 surface, 27-2  
 system, 50-6  
 unit, 47-1  
 vector, 50-7  
 volume, 27-2
- Controllability, 50-7
- Controlled  
 -cooling-transformation curve, 42-7  
 system, 50-7
- Controller, 50-7
- Controls, 50-1
- Convection, 31-1, 31-2  
 forced, 31-1  
 natural, 31-1  
 Newton's law of, 31-2
- Convention  
 sign, moment, 20-2  
 sign, shear, 20-1  
 sign, thermodynamic, 27-2  
 year-end, 51-2
- Convergence, interval of, 5-7
- Convergent sequence, 5-7
- Conversion  
 factors, 3-1, 3-2  
 of energy, 17-2
- Coordinates  
 polar, 5-2  
 rectangular, 14-1
- Coordination number, 40-3
- COP, 28-5
- Core, 47-3  
 column, 21-1
- Cornea, 34-3
- Corner frequency, 50-3
- Corrosion, 42-1  
 fretting, 42-2  
 stress, 42-2
- Cosecant, 4-5
- Cosine, 4-5, 10-1  
 -sine relationships, 45-1
- Cosines, law of, 4-6
- Cost  
 capitalized, 52-2  
 equivalent annual, 53-1  
 equivalent uniform annual, 52-2, 53-1  
 project, 51-2  
 recovery system, accelerated, 52-1  
 sunk, 51-1
- Cotangent, 4-5
- Coulomb, 43-2  
 friction, 12-2
- Coulomb's law, 43-2
- Counter-emf, 46-2
- Couple, 10-2
- Coupling moment, 10-3
- Covalent bond, 37-4, 40-4
- CPF, 34-6
- CPU, 47-1
- Cramer's rule, 5-5
- CRC, 47-6
- Creed, 54-1
- Critical  
 isobar, 26-3  
 load (column), 21-2  
 point, 7-1, 26-2 (fig), 26-3, 42-5  
 Reynolds number, 24-4  
 slenderness ratio, 21-2  
 temperature, 42-5  
 values,  $F$ -distribution, 6-14 (tbl)  
 zone, 24-4
- Critically damped, 8-2
- Crossover  
 frequency, phase, 50-6  
 gain, 50-6
- Cross product, 5-6
- CRT, 47-3
- Cryogenic liquid, 35-3
- Crystalline cell, 40-1
- Crystallography, 40-1
- CTD, 35-12
- CTS, 35-13, 47-4
- Cubic  
 body-centered, 40-2  
 cell, 40-1  
 face-centered, 40-2
- Cubital Tunnel Syndrome, 35-13
- Cumulative trauma disorder, 35-12
- Curl, 7-5
- Current, 43-4  
 density, 43-4  
 source, ideal, 44-1
- Curvature, 7-2, 14-3, 20-4
- Curve  
 banked, 16-3  
 bell-shaped, 6-3  
 controlled-cooling-transformation, 42-7  
 load-elongation, 41-1  
 $S$ - $N$ , 41-3  
 time-temperature-transformation, 42-7
- Curvilinear motion, 14-2
- Cut-off frequency, 50-5
- Cycle  
 air-standard, 28-4  
 Carnot (power), 28-2  
 Carnot (refrigeration), 28-5  
 four-stroke, 28-4  
 Otto, 28-3  
 power, 28-1, 28-2  
 Rankine, 28-2, 28-3  
 refrigeration, 28-4
- Cycling redundancy checking, 47-6
- Cycloalkene, 38-5 (tbl)
- Cylinder, 16-14, 47-4  
 hollow, 16-14  
 right circular, mensuration, 4-7
- Cytoplasm, 33-2
- Cytosol, 33-2
- D**
- Daily intake, chronic, 34-6
- Dalton's law, 29-2
- Darcy  
 equation, 24-4  
 friction factor, 24-4
- Data bus, 47-1
- Data terminal ready, 47-4
- Database, 48-6
- Daughter node, 48-6
- DC  
 circuit, 44-1  
 generator, 46-3  
 machine, 46-1, 46-3  
 motor, 46-5  
 voltage, 46-3
- DDT, 34-3
- Dead finger, 35-14
- Death growth phase, 33-4
- Decay  
 alpha, 37-6  
 beta, 37-6  
 radioactive, 35-11, 37-6
- Declining growth phase, 33-4
- Decomposition, 33-9, 33-10
- DEDO, 47-3
- Defect  
 concentration gradient, 42-3  
 grain, 42-3  
 grain boundary, 42-3  
 planar, 42-3  
 point, 42-3
- Definite integral, 7-3
- Definition proportions, law of, 37-5
- Deflect flux, 42-3
- Deflection  
 beam, 20-4  
 bridge, 49-3
- Deflector, force on, 24-8
- Deformation, 18-2
- Deformations, consistent, 20-4
- Degenerate circle, 4-4
- Degree  
 of freedom, 6-4, 29-5, 42-5, 50-7  
 of indeterminacy, 10-4  
 of reduction, 33-11
- Dehydration, 35-12
- Del operator, 7-5
- Delta-iron, 42-5

- de Moivre's formula, 5-2
  - Demand, oxygen, biochemical, 33-9
  - Denominator, rationalizing, 5-2
  - Density, 22-1, 22-2
    - current, 43-4
    - function, probability, 6-3
    - ideal gas, 38-3
    - mass, 22-1
    - recording, 47-5
  - Denitrification, 33-10
  - Denitrifier, 33-6
  - Deoxyribonucleic acid, 33-2
  - Dependent source, electrical, 44-1
  - Depreciation, 52-1
  - Derivative, 7-1, 7-2, 7-14 (tbl)
  - Derived unit, 1-4
  - Dermal absorption, 34-2
  - Dermis, 34-2
  - Destruction, nerve, 34-4
  - Determinacy, 10-4
  - Determinant, matrix, 5-3
  - Determinate
    - system, 10-4
    - truss, 11-2
  - Deuterium, 37-6
  - Deviation, standard, 6-2
  - Dew-point temperature, 29-3
  - Diagram
    - binary phase, 42-3
    - cash flow, 51-1
    - equilibrium, 26-2, 42-3
    - free-body, 10-4
    - moment, 20-2
    - phase, 26-2, 42-3
    - shear, 20-2
    - Stanton, 24-5
  - Diameter
    - equivalent, 24-6
    - hydraulic, 24-6
  - Diatomic
    - gas, 37-4
    - molecule, 37-4, 40-4
  - Difference
    - common, 5-7
    - equation, 8-4
    - of means, 6-5
  - Differential
    - equation, 8-1, 8-2
    - manometer, 23-2, 25-3
    - term, 7-3
  - Diffuser, 27-4
  - Diffusion, 42-3
    - coefficient, 42-3
    - facilitated, 33-3
    - molecular, 32-3
    - passive, 33-3
  - Diffusivity, 42-3
  - Digester, biological, 36-4
  - Digital audio tape, 47-5
  - Dihydroxic base, 38-4
  - Dilatant fluid, 22-3, 24-4
  - Dilution ventilation, 35-7
  - Dimensional analysis, 25-4
  - Dimension, characteristic, 24-6
  - Dimensions, primary, 25-4
  - Diprotic acid, 38-4
  - Direct
    - access, 47-4
    - central impact, 17-3
    - contact heater, 27-5
    - current, 44-1
    - gain, 50-2
    - human exposure, 34-6
    - memory access, 47-3
    - transfer function, 50-1
  - Direction cosine, 10-1
  - Directrix, parabola, 4-2
  - Disbursement (cash), 51-1
  - Discharge
    - coefficient of, 25-4
    - free fluid, 25-4
  - Discomfort zone, temperature, 35-11
  - Discount factor, 51-2, 51-4 (tbl)
  - Discrete
    - numerical event, 6-2
    - random variable, 6-3
  - Discriminant, 4-2
  - Disease
    - waterborne, 33-11
    - zoonotic, 35-15
  - Disk pack, 47-4
  - Dispersion, 6-2, 6-3
  - Distance
    - angular, 16-2
    - between points, 4-1, 4-4
    - semimajor, ellipse, 4-3
    - semiminor, ellipse, 4-3
  - Distortion energy theory, 18-5
  - Distributed data processing system, 47-6
  - Distribution
    - binomial, 6-3
    - continuous, 6-2
    - fluid velocity, 24-4
    - function, probability, 6-3
    - Gaussian, 6-3
    - normal, 6-3
    - shear stress, beam, 20-3
    - Student's  $t$ -, 6-4, 6-9 (tbl)
    - $t$ -, 6-4, 6-5, 6-9 (tbl)
  - Divergence, 7-5
  - Divergent sequence, 5-7
  - DMA, 47-3
  - DNA, 33-2
  - Dome, vapor, 26-2
  - Dose
    - infective, 33-11
    - lethal, 34-5
    - radiation, 35-11
    - response curve, 34-4
    - response relationship, 34-4
    - safe human, 34-5
  - Dot product, 5-5
  - Double
    - angle formula, 4-5
    - root, 4-2
  - DO/UNTIL, 48-3
  - Double
    - length word, 47-2
    - precision, 47-2
  - Doubleword, 47-2
  - DO-WHILE, 48-3
  - Drag, 24-10
  - Drag coefficient, 24-10
  - DRAM, 47-3
  - Dry-bulb temperature, 29-3
  - DTR, 47-4
  - Ductility, 41-3
  - Ductility transition temperature, 41-4
  - Du Nouy apparatus, 22-4
  - Duplex communication, 47-6
  - Duration
    - average, 34-7
    - exposure, 34-6
  - Dust, radioactive, 35-7
  - Dynamic
    - friction, 12-2, 15-2
    - memory, 47-3
    - similarity, 25-5
    - unit, 50-1
    - viscosity, absolute, 22-3
  - Dynamics, 14-1
  - Dynamics, fluid, 24-1
- E**
- E. coli, 33-3, 33-6, 33-9
  - EBCDIC, 48-1
  - Ebola, 35-17
  - Eccentricity, 4-2, 4-3, 21-1
  - Eccentric loading, 21-1
  - Echo checking, 47-6
  - Effect
    - Frank, 34-5
    - systemic, 34-3
  - Effective
    - annual interest rate, 51-5
    - interest rate, 51-2
    - interest rate per period, 51-6
    - length (column), 21-2
    - stress, 18-5
    - value, sinusoid, 45-2
  - Efficiency
    - fin, 31-3
    - isentropic, 27-4
    - nozzle, 27-4
    - pump, 25-2
    - radiator, 31-3
    - thermal, 28-2
  - Efflux, Torricelli's speed of, 24-8
  - Eigenvalue, 50-3
  - Elastic
    - impact, 17-3
    - limit, 41-2
    - potential energy, 17-2
    - region, 41-2
    - section modulus, 20-3
    - strain, 41-2
    - strain energy, 18-2
  - Elasticity, modulus of, 18-1, 41-2
  - Electric
    - flux, 43-2, 43-3
    - potential gradient, 43-4
  - Electrochemical reaction, 39-3
  - Electrolysis, 39-3
  - Electrolyte, 39-3
  - Electrolytic
    - medium, 42-1
    - reaction, 39-3
  - Electromotive force, 43-6, 46-2
  - Electron affinity, 37-3

- Electronegativity, 37-3
  - Electrostatic unit, 43-2
  - Element, 37-1
    - bimetallic, 19-2
  - Elevation
    - boiling point, 39-3
    - head, 24-2
  - Ellipse, 4-2, 4-3
    - eccentricity, 4-3
    - general form, 4-3
    - latus rectum, 4-3
    - mensuration, 4-7
    - semimajor distance, 4-3
    - semiminor distance, 4-3
    - standard form, 4-3
  - Elongation, percent at failure, 41-3
  - EMF, 43-6
  - Emissivity, 31-2
  - Emulation mode, 47-2
  - End
    - of-file, 47-5
    - post, 11-1
    - restrain coefficient, 21-2, 21-3 (tbl)
  - Endocytosis, 33-3
  - Endogenous infection, 35-15
  - Endoplasmic reticulum, 33-2
  - Endothermic reaction, 39-2
  - Endurance
    - limit, 41-4
    - stress, 41-4
    - test, 41-3
  - Energy
    - activation, 42-3
    - conservation of, fluid, 24-3
    - conservation principle, 17-2
    - conversion, 17-2
    - distortion, 18-5
    - electrical, 44-2
    - equation, steady flow, 27-3
    - flow, 26-5
    - fluid, 24-2
    - free, 29-5
    - grade line, 24-2
    - impact (toughness), 41-4
    - internal, 26-4
    - ionization, 37-3
    - kinetic, 17-1
    - kinetic (fluid), 24-2
    - line, fluid, 24-2
    - of a mass, 17-1
    - potential, 17-2
    - potential (fluid), 24-2
    - pressure, 24-2
    - specific pressure, 24-2
    - storage, magnetic, volume, 43-5
    - strain, 18-2, 41-4
    - transfer, 32-2
    - work theorem, 17-2
  - Engine, 28-2
  - Engineering
    - strain, 41-1
    - stress, 41-1
  - Engineers, ethics, 54-3
  - English
    - engineering system, 1-2
    - gravitational system, 1-4
  - Enterovirus, 33-6
  - Enthalpy, 26-5, 39-2
    - atmospheric air, 29-5
    - chemical, 39-2
    - of formation, 39-2
    - of reaction, 39-2
  - Entropy, 26-5
    - change, 28-5
    - production, 26-5, 28-5
  - Environment, 27-2
  - Enzyme, 33-6
  - Epicondylitis, 35-13
  - Epidermis, 34-2
  - EPROM, 47-3
  - Equation
    - Bernoulli, 24-2, 24-3
    - Bernoulli (thermodynamic), 27-3
    - characteristic, 8-1
    - Clapeyron, 29-5
    - complementary, 8-2
    - continuity, 24-1
    - Darcy, 24-4
    - difference, 8-4
    - differential, 8-1, 8-2
    - extended Bernoulli, 24-3
    - field, 24-2
    - Hagen-Poiseuille, 24-6
    - Hazen-Williams, 24-10
    - Henderson-Hasselbach, 33-3
    - Kline-McClintock, 49-5
    - logistic, 33-4
    - Manning's, 24-10
    - of state, 25-2, 26-7, 38-3
    - quadratic, 4-1
    - reduced, 8-2
    - steady flow energy, 27-3
  - Equations, simultaneous linear, 5-4
  - Equilibrium
    - constant, 38-3
    - diagram, 26-2, 42-3
    - static, 10-3
    - thermal, 26-4
  - Equipment, personal protective, 35-5
  - Equivalence, 51-3
    - gradient, 51-5
    - single payment, 51-3
    - uniform series, 51-3
  - Equivalent
    - annual cost, 53-1
    - chemical, 37-6
    - diameter, 24-6
    - exposure, 34-8
    - uniform annual cost, 52-2, 53-1
    - weight, 37-6
  - Ergonomic hazard, 35-2
  - Ergonomics, 35-12
  - Error, 50-1
    - ratio, 50-1
    - signal, 50-1
    - transfer function, 50-1
  - Escherichia coli, 33-3
  - Ester, 38-4 (tbl), 38-5 (tbl)
  - Estimator
    - biased, 6-2
    - unbiased, 6-2
  - Ether, 38-4 (tbl), 38-5 (tbl)
  - Ethical priority, 54-2
  - Ethics, 54-1
  - EUAC, 52-2
  - Eukaryote, 33-1, 35-14
  - Euler load, 21-2
  - Euler's
    - approximation, 8-5
    - equation, 43-2
    - formula, 21-2
  - Eutectic
    - alloy, 42-4
    - composition, 42-4
    - reaction, 42-4 (tbl)
    - temperature, 42-4
  - Eutectoid reaction, 42-4 (tbl)
  - Evaporator, 27-4
  - Even parity, 47-3
  - Event, 6-1, 6-2
  - Excess air, 30-2
  - Excessive lifetime cancer risk, 34-6
  - Exchanger, heat, 27-4
  - Exfoliation, 42-2
  - Exocytosis, 33-3
  - Exogenous infection, 35-15
  - Exothermic reaction, 39-2
  - Expansion
    - by cofactors, 5-4
    - pipe, 24-6
    - thermal coefficient of, 19-1, 19-2 (tbl)
  - Expected
    - exposure dose, 34-5
    - value, 6-3, 52-3
  - Expert system, 48-7
  - Explosive limit
    - lower, 35-5
    - upper, 35-5
  - Exponential
    - decay, 50-3
    - decay law, 37-7
    - form
      - sinusoidal, 45-2
      - trigonometric terms, 43-2
    - growth phase, 33-4
  - Exposure
    - dose, 34-5
    - duration, 34-6
    - level, short-term, 34-7
    - limit, permissible, 34-8, 35-3
    - pathway, 34-2
  - Extended Bernoulli equation, 24-3
  - Extended surface, 31-3
  - Extensive property, 26-3
  - External force, 10-1
  - Extraction heater, 27-4
  - Extrema, 7-1
  - Extreme
    - fiber, 20-2
    - point, 7-1
  - Eye, 34-3, 34-4
- F**
- Face
    - centered cubic cell, 40-2
    - value (of a bond), 52-3
  - Facilitated diffusion, 33-3
  - Factor
    - bioconcentration, 34-7

- configuration, 31-3
- Darcy friction, 24-4
- discount, 51-2, 51-4 (tbl)
- potency, 34-6
- slope, 34-6
- Factory, yield, 33-11
- Facultative
  - bacteria, 33-6
  - heterotroph, 33-8
  - pond, 36-3
- Fanning friction, 32-2
- j*-, 32-3
- Moody friction, 32-2
- packing, 40-3
- shape, 31-3
- single payment compound amount, 51-3
- single payment present worth, 51-3
- sinking fund, 51-4
- stress concentration, 18-5
- uniform gradient, 51-5
- uniform series compound amount, 51-3
- Factors, conversion, 3-1, 3-2
- Failure
  - fatigue, 41-3
  - theory, 18-5
- Family
  - elemental, 37-1
  - organic compound, 38-4
- Fanning friction factor, 32-2
- Faraday's
  - law, 43-6
  - laws of electrolysis, 39-3
- Faraday (unit), 39-3
- Fatigue
  - failure, 41-3
  - life, 41-4
  - limit, 41-4
  - strength, 41-4
  - test, 41-3
- Fatty
  - acid, 33-10, 38-5 (tbl)
  - tissue, 34-2
- FCC, 40-2
- FCC metals, 41-2, 41-5
- F*-distribution, critical values, 6-14 (tbl)
- FDM, 47-4
- Fecal coliform, 33-9
- Feedback, 50-1
  - ratio, 50-2
  - transfer function, 50-2
  - unit, 50-1
- Feedwater heater, 27-4
- Fermentation, 33-10
- Ferrite, 42-5
- Fiber
  - airborne, 35-6
  - extreme, 20-2
  - strengthened material, 42-8
- Fick's law, 32-3, 42-3
- Field
  - AC machine, 46-3
  - data, 48-4
  - equation, 24-2
  - magnetic, 43-5
- File
  - indexing, 48-5
  - data, 48-4
- Film coefficient, heat transfer, 32-2
- Fin, 31-3
- Final
  - value, 50-2
  - value theorem, 8-3, 8-5
- Finite
  - difference equation, 4-5
  - series, 5-7
- Firmware, 47-3, 48-1
- First
  - area moment, 13-1
  - derivative, 7-1
  - law of motion, Newton's, 15-1
  - law of thermodynamics, 27-2
  - law of thermodynamics, open system, 27-3
  - moment, 20-3
  - moment of the area, 7-4, 13-1
  - order differential equation, 8-1
- Fish, bioconcentration factors, 34-7 (tbl)
- Fission, binary, 33-8
- Fixed
  - blade, force on, 24-8
  - film bioprocessing, 36-4
  - point iteration, 9-2
  - pulley, 12-1
- Flagella, 33-2, 33-8
- Flagellated protozoa, 33-8
- Flammable
  - limit, lower, 35-5
  - limit, upper, 35-5
  - liquid, 35-5
- Flange (structural steel), 13-3
- Flash point, 35-5
- Flat file, 48-6
- Flatworm, 33-8
- Flexural stress, 20-2
- Floppy disk, 47-5
- Flow
  - cash, 51-1
  - coefficient (meter), 25-4
  - control, 47-4
  - energy, 26-5
  - gravity, 24-6
  - laminar, 24-3
  - open channel, 24-6, 24-11
  - pressure, 24-6
  - rate, recycle, 36-3
  - shear, 19-3
  - turbulent, 24-3, 24-4
  - work, 26-5, 27-2
- Flowchart, 48-1
- Fluid, 22-1
  - dynamics, 24-1
  - energy, 24-2
  - friction, 12-2
  - ideal, 22-2
  - non-Newtonian, 22-3
  - power law, 22-3, 24-3
  - statics, 23-1
  - stress, 22-2, 22-3
  - surface tension, 22-3
  - velocity distribution, 24-4
- Fluke, 33-8
- Flux
  - defect, 42-3
  - electric, 43-2, 43-3
  - molar, 32-3
- Focus, parabola, 4-2
- Food
  - botulism, 35-16
  - poisoning, 35-16
- FOR loop, 48-3
- Force
  - buoyant, 23-5
  - centrifugal, 16-3
  - centripetal, 16-3
  - concurrent, 10-3
  - couple system, 10-3
  - external, 10-1
  - frictional, 15-2
  - hydrostatic, 23-3
  - internal, 10-1, 11-1
  - normal, 12-2, 15-2
  - on a pipe bend, 24-7
  - Van der Waals, 40-4
- Forced
  - convection, 31-1
  - vibration, 15-3
- Foreground processing, 47-6
- Forcing function, 8-2
- Form
  - center-radius, 4-4
  - general, circle, 4-4
  - general, conic section, 4-2
  - general, ellipse, 4-3
  - general, hyperbola, 4-3
  - general, parabola, 4-2
  - general, sphere, 4-4
  - general, straight line, 4-1
  - point-slope, 4-1
  - polar, 5-2
  - rectangular, 5-2
  - rectangular coordinator (position), 14-2
  - slope-intercept, 4-1
  - standard, circle, 4-4
  - standard, ellipse, 4-3
  - standard, hyperbola, 4-3
  - standard, parabola, 4-2
  - standard, sphere, 4-4
  - standard, straight line, 4-1
  - trigonometric, 5-2
  - unit vector (position), 14-2
  - vector (position), 14-2
- Formality, 39-1
- Formation
  - enthalpy of, 39-2
  - Gibbs' function, 29-5
  - heat of, 39-2
- Formula
  - chemical, 37-4
  - de Moivre's, 5-2
  - development, 37-6
  - double-angle, 4-5
  - Euler's, 21-2
  - half-angle, 4-6
  - Taylor's, 5-8
  - two-angle, 4-5
  - weight, 37-6

- Forward
    - gain, 50-2
    - transfer function, 50-??
  - Fourier
    - analysis, 8-2
    - coefficient, 8-2
    - series, 8-2
  - Fourier's
    - law, 31-1
    - theorem, 8-2
  - Four-stroke cycle, 28-4
  - Fourth-power law, 31-3
  - Fraction
    - gravimetric, 29-1, 37-6
    - mass, 29-1
    - mole, 29-1, 39-1
    - partial, 7-4
  - Fracture
    - appearance transition temperature, 41-5
    - strength, 41-3
    - transition temperature, 41-4
  - Frame, 11-1, 47-3
  - Frank effect level, 34-5
  - Free
    - body diagram, 10-4
    - discharge (fluid), 25-4
    - energy, 29-5
    - moment, 10-3
    - pulley, 12-1
    - surface, 24-6
    - vibration, 15-3
    - vibration, torsional, 16-3
  - Freedom
    - degrees, 6-4, 29-5, 42-5
    - degree of, 50-7
  - Freezing point constant, 39-3
  - Frequency, 35-7, 45-2
    - angular, 15-4, 45-2
    - corner, 50-5
    - cut-off, 50-5
    - division multiplexer, 47-4
    - fundamental, 8-3
    - mechanical, 46-1
    - natural, 8-3
    - natural, vibration, 15-4
    - resonance, 45-5
    - response, 50-5
  - Fretting corrosion, 42-2
  - Friction, 12-2, 15-2
    - angle, thread, 12-2
    - belt, 12-2
    - coefficient of, 12-2, 15-2
    - Coulomb, 12-2
    - dynamic, 12-2, 15-2
    - factor chart, Moody, 24-5
    - factor, Darcy, 24-4
    - factor, Fanning, 32-2
    - factor, Moody, 32-2
    - fluid, 12-2
    - head loss, 24-3
    - static, 12-2, 15-2
  - Frictional force, 15-2
  - Frictionless surface, 10-5
  - Froude number, 25-5
  - Full-duplex communication, 47-6
  - Fume, 35-6
    - welding, 35-7
  - Function
    - forcing, 8-2
    - Gibbs', 26-5, 29-5
    - Helmholtz, 26-5, 29-5
    - probability density, 6-3
    - probability distribution, 6-3
  - Functional group, organic, 38-4
  - Function of formation, Gibbs', 29-5
  - Fundamental
    - constants, 2-1
    - frequency, 8-3
    - theorem of calculus, 7-3
  - Fund, sinking, 51-4
  - Fungi, 33-8
  - Future worth, 51-3
- G**
- Gage
    - factor, 49-3
    - pressure, 22-2
  - Gain
    - characteristic, 50-3
    - crossover, 50-6
    - crossover point, 50-4
    - direct, 50-2
    - forward, 50-2
    - margin, 50-6
  - Galvanic
    - action, 42-1
    - cell, 42-1
    - series, 42-1, 42-2 (tbl)
  - Gamma
    - iron, 42-5
    - ray, radiation, 35-11
  - Ganglionitis, 35-13
  - Gas
    - constant, 38-3
    - constant, specific, 25-2, 26-7
    - constant, universal, 25-2, 26-7 (tbl), 38-3
    - diatomic, 37-4
    - ideal, 26-2, 26-6, 38-3
    - inert (*see* Gas, noble)
    - mixture, 26-2, 29-2
    - noble, 37-3
    - perfect, 25-2 (*see also* Gas, ideal)
    - real, 26-2
  - Gases in liquid, 39-1
  - Gauss' law, 43-4
  - Gaussian
    - distribution, 6-3
    - surface, 43-4
  - General
    - form, circle, 4-4
    - form, conic section, 4-2
    - form, ellipse, 4-3
    - form, hyperbola, 4-3
    - form, parabola, 4-2
    - form, sphere, 4-4
    - form, straight line, 4-1
    - strain, 18-4
    - term, sequence, 5-7
    - triangle, 4-6
  - Generator, 46-3
  - Geometric
    - mean, 6-2
    - progression, 5-7
    - similarity, 25-5
  - Gibbs'
    - function, 26-5, 29-5
    - function of formation, 29-5
    - phase rule, 29-5, 42-5
    - rule, 29-2
    - theorem, 29-2
  - Global variable, 48-3
  - Gloves, 35-5
  - Glycol, 38-5 (tbl)
  - Golfer's elbow, 35-13
  - Golgi
    - apparatus, 33-2
    - complex, 33-2
  - GOTO statement, 48-4
  - GOTO-less programming, 48-3
  - Grade line, hydraulic, 24-2
  - Gradient
    - concentration, 32-3
    - defect concentration, 42-3
    - equivalence, 51-5
    - function, 7-5
    - of a scalar function, 7-5
    - series cash flow, 51-2
    - velocity, 22-3
  - Grain
    - boundary defect, 42-3
    - size, 42-8
    - unit of mass, 29-3
  - Gram-mole, 37-5
  - Gravimetric
    - analysis, 37-6
    - fraction, 29-1, 37-6
  - Gravitational
    - constant, 1-2
    - head, 24-2
    - potential energy, 17-2
  - Gravity
    - acceleration, 1-2
    - center of, 13-2
    - flow, 24-6
    - head, 24-2
    - specific, 22-2
  - Gray, unit, 35-10
  - Group
    - elemental, 37-1
    - pi-, 25-5
  - Growth, organismal, 33-3, 33-4
  - Growth rate constant, 33-4
  - Gyration, 13-3, 13-14 (tbl), 16-2, 16-14 (tbl)
- H**
- Hagen-Poiseuille equation, 24-6
  - Half
    - angle formula, 4-6
    - cell, 42-1, 42-2 (tbl)
    - duplex communication, 47-6
    - life, 35-11, 37-7
    - life, biological contaminant, 36-2
    - power point, 45-6, 50-5
    - value thickness, 35-11
    - word, 47-2
  - Halide, 38-4 (tbl), 38-5 (tbl)
  - Halogen, 37-3, 38-4 (tbl)
  - Handshaking, 47-4
  - Hantavirus, 35-17

- Hard drive, 47-4
  - Hard X-ray, 35-10
  - Hardenability, 42-7
  - Hardening, 42-6
  - Hardness, 42-7 (*see also by type*)
  - Hardness test, 42-7
  - Harmonic series, 8-2
  - Hardware, 48-1
    - flow control, 47-4
  - Hashing, 48-5
  - Hazard, 35-3
    - biological, 35-2
    - chemical, 35-2
    - ergonomic, 35-2
    - physical, 35-2
    - ratio, 34-5
    - ration, 34-8
  - Hazen-Williams equation, 24-10
  - HCP, 40-2
  - HCP metals, 41-2, 41-5
  - Head
    - elevation, 24-2
    - gravitational, 24-2
    - gravity, 24-2
    - loss, 24-3, 24-6
    - potential, 24-2
    - pressure, 24-2
    - velocity, 24-2
  - Health risk zone, temperature, 35-11
  - Heap sort, 48-5
  - Hearing
    - conservation program, 35-7
    - loss, 35-9
    - protection, 35-9
  - Heart, 34-4
  - Heat
    - balance, human body, 35-11
    - capacity, 26-5, 26-6 (tbl), 26-7 (tbl)
    - engine, 28-2
    - exchanger, 27-4
    - exhaustion, 35-12
    - graphical (thermodynamic), 28-7
    - of formation, 39-2
    - of reaction, 39-2
    - of solution, 39-2
    - pump, 28-4
    - specific, 26-5, 26-6 (tbl), 26-7 (tbl)
    - strain, 35-12
    - stress, 35-11, 35-12
    - transfer, 31-1
    - transfer film coefficient, 32-2
    - transfer, radiant, 31-3
    - treatment, 42-6
  - Heater
    - direct contact, 27-4
    - extraction, 27-4
    - feedwater, 27-4
    - mixing, 27-4
  - Heatstroke, 35-12
  - Helmholtz function, 26-5, 29-5
  - Hematotoxicity, 34-3
  - Henderson-Hasselbach equation, 33-3
  - Henry's
    - law, 29-2, 39-1
    - law constant, 29-2
  - Hepatitis, 33-6, 35-16
  - Hepatotoxicity, 34-4
  - Hess' law of energy summation, 39-2
  - Heterotroph, 33-6
  - Hexadecimal, 48-1
  - Hexagonal
    - cell, 40-1
    - close-packed cell, 40-2
  - Hierarchical database, 48-6
  - High rate digester, 36-4
  - HIV, 33-11, 35-16
  - Hollow
    - cylinder, 16-14
    - shell, 19-3
  - Homogeneous
    - differential equation, 8-1
    - system of units, 1-2 (ftn)
  - Hooke's law, 18-1, 41-2
  - Hoop stress, 19-2, 19-3
  - Horsepower, 25-1
  - Host ingredient, 42-3
  - Hot working, 42-6
  - HR, 34-5
  - Human immunodeficiency virus, 33-11
  - Humidity
    - ratio, 29-3
    - relative, 29-3
    - specific, 29-3
  - Hydration, 39-2
  - Hydraulic
    - diameter, 24-6
    - grade line, 24-2
    - horsepower, 25-1
    - power, 25-1
    - radius, 24-6
    - residence time, 36-2
  - Hydrocarbon, 38-4, 38-5 (tbl)
  - Hydrogen isotope, 37-6
  - Hydronium ion, 38-3
  - Hydrostatic
    - force, 23-3
    - paradox, 23-1
    - pressure, 23-1, 23-3
    - resultant, 23-3, 23-4
  - Hydroxyl, 38-4 (tbl)
  - Hygiene, industrial, 35-2
  - Hyperbola, 4-2, 4-3
    - conjugate axis, 4-3
    - focus, 4-3
    - general form, 4-3
    - standard form, 4-3
    - transverse axis, 4-3
  - Hypotenuse, 4-4
  - Hypothermia, 35-12
  - Hypothesis
    - Avogadro's, 38-1, 38-3
    - test, 6-5
- I**
- IC, 16-2
  - Ice point, 26-4
  - Ideal
    - air (combustion), 30-1
    - cable, 12-1
    - capacitor, 45-4
    - current source, 44-1
    - fluid, 22-2
    - gas, 26-2, 26-6, 38-3
    - gas, density, 38-3
    - gas mixture, 29-1
    - inductor, 45-4
    - radiator, 31-2
    - resistor, 45-3
    - transformer, 45-7
    - voltage source, 44-1
  - Identities
    - trigonometric, 4-5
    - vector, 5-6
  - Identity, logarithm, 5-1
  - Identity matrix, 5-3
  - IDLH, 35-4 (tbl)
  - IF-THEN, 48-3
  - Imaginary number, 5-1, 43-1
  - Immunotoxicity, 34-4
  - Impacts, 17-2
    - direct central, 17-3
    - elastic, 17-3
    - energy (toughness), 41-4
    - inelastic, 17-3
    - noise, 35-9
    - plastic, 17-3
    - test, 41-4
  - Impedance
    - electrical, 45-3
    - triangle, 45-3
  - Imperfection (*see* Defect)
  - Impulse, 24-7
    - linear, 17-2
    - momentum principle, 17-2, 24-6
    - turbine, 24-9
  - Incomplete combustion, 30-2
  - Incremental, analysis, 53-2
  - Indefinite integral, 7-3, 7-14 (tbl)
  - Independent source, electrical, 44-1
  - Indeterminacy, 10-4
  - Indeterminate system, 10-4
  - Index
    - consistency, 22-3, 24-4
    - Miller, 40-3
  - Indexed
    - sequential file, 48-4
    - sequential format, 47-5
  - Indicator organism, 33-9
  - Indigenous infection, 35-15
  - Induced voltage, 43-6
  - Inductance, 44-3
  - Induction
    - motor, 46-2
    - magnetic, 43-5
  - Inductive reactance, 45-4
  - Inductor, 44-3
    - ideal, 45-4
  - Industrial Hygiene, 35-2
  - Inelastic
    - impact, 17-3
    - strain, 41-2
  - Inequality of Clausius, 28-5
  - Inert gas (*see* Noble gas)
  - Inertia
    - centroidal moment of, 7-4, 13-2, 13-14 (tbl)
    - mass moment of, 16-1, 16-14 (tbl)
    - moment of, 13-2, 13-14 (tbl)
    - moment of, area, 7-4

- polar moment of, 13-2, 13-14 (tbl), 19-3  
product of, 13-3, 16-14 (tbl)
- Infection, 35-15
- Infective dose, 33-11
- Infinite series, 5-7
- Inflation, 52-3
- Inflection point, 7-1
- Ingredient
  - alloying, 42-3
  - host, 42-3
  - parent, 42-3
- Ingestion, 34-3
- Inhalation, 34-2
- Initial
  - value, 50-2
  - value problem, 8-2
  - value theorem, 8-3
  - value theorem,  $z$ -transform, 8-5
- Initiation stage, cancer, 34-6
- Input/output device, 47-3
- Insensitivity, 49-2
- Insertion sort, 48-5
- Instability, point of, 50-6
- Instantaneous center of rotation, 16-2
- Instant center, 16-2
- Instruction register, 47-1
- Insulated tip, 31-3
- Insulation, 35-12
- Integral, 7-3, 7-14 (tbl)
  - calculus, 7-3
  - definite, 7-3
  - indefinite, 7-3, 7-14 (tbl)
- Integrand, 7-3
- Integrated Risk Information System, 34-6
- Integration, 7-3
  - by parts, 7-3
  - by substitution, 7-3
  - constant of, 7-3
  - variable of, 7-3
- Intensity
  - radiation, 35-10
  - sound, 35-8
- Intensive property, 26-3
- Interblock gap, 47-5
- Intercept, 4-1
- Interest
  - compound, 51-5
  - rate, effective, 51-2
  - rate, effective annual, 51-5
  - rate, nominal, 51-5
  - rate per period, 51-5
  - rate per period, effective, 51-6
  - simple, 51-5
- Interference, nerve, 34-4
- Intermittent noise, 35-9
- Internal
  - energy, 26-4
  - force, 10-1, 11-1
  - work, 18-2
- Interpreter, 48-2
- Interrupt, 47-2
- Intersection lines, 4-1
- Interstice, 40-3
- Interstitial space, 40-3
- Interval
  - confidence, 6-4
  - of convergence, 5-7
- Intrinsic machine code, 48-2
- Inverse Laplace transform, 8-3
- Inverse matrix, 5-4
- Ion, 37-3, 38-3
- Ionic
  - bond, 37-3, 40-4
  - concentration, 38-4
- Ionization energy, 37-3
- Ionizing radiation, 35-10
- IRIS, 34-6
- Iron
  - alpha-, 42-5
  - bacteria, 33-6
  - carbide, 42-5
  - carbon phase diagram, 42-5 (fig)
  - cast, 42-5
  - delta-, 42-5
  - gamma, 42-5
- Irrational number, 5-1
- Irreversibility, process, 28-6
- Isentropic
  - efficiency, 27-4
  - process, 25-2, 26-8, 27-1, 27-3
- Isobar, 26-3
- Isobaric process, 27-1
- Isochoric process, 27-1
- Isolated system, 27-2
- Isometric process, 27-1
- Isotherm, 26-3
- Isothermal process, 27-1, 27-3
- Isotope, 37-1, 37-6
- Iteration, fixed-point, 9-2
- J**
- Jet
  - propulsion, 24-8
  - velocity (fluid), 24-8
- $j$ -factor, 32-3
- Joint, 6-1, 11-1
- Joints, method of, 11-2
- Joule's
  - constant, 26-5
  - law, 44-2
- K**
- Kalman's theorem, 50-7
- KB, 47-2
- KCL, 44-4
- Kelvin-Planck statement, 28-6
- Kelvin temperature, 26-4
- Kern, 21-1
- Kernel, 21-1
- Ketone, 38-5 (tbl)
- Kidney, 34-3, 34-4
- Kilobyte, 47-2
- Kiloword, 47-2
- Kinematic
  - similarity, 25-5
  - viscosity, 22-3
- Kinematics, 14-1
- Kinetic
  - energy, 17-1
  - energy (fluid), 24-2
- Kinetics, 15-1, 15-3
- Kingdom, 33-4
- Kirchhoff
  - current law, 44-4
  - laws, 44-3
  - voltage law, 44-4
- Kline-McClintock equation, 49-5
- Knoop hardness, 42-7
- KVL, 44-4
- kW, 47-2
- L**
- Label, container, 35-3
- Lag growth phase, 33-3
- Lagging
  - circuit, 45-5
  - current, 45-3
  - impedance triangle, 45-3
- Lamellar appearance, 42-5
- Lame's solution, 19-3
- Laminar flow, 24-3, 24-4
- LAN, 47-6
- Lanthanide, 37-3
- Lanthanum, 37-3
- Laplace transform, 8-3, 8-4 (tbl)
- Laplacian, 7-5
- Large-scale integration, 47-1
- Latency, 47-5
- Lattice
  - Bravais, 40-1
  - constant, 40-2
  - point, 40-3
- Latus rectum
  - ellipse, 4-3
  - parabola 4-2
- Law
  - Amagat's, 29-2
  - Avogadro's, 26-7
  - Boyle's, 25-2, 27-2
  - Charles', 27-2
  - conservation of momentum, 15-1
  - Dalton's, 29-2
  - exponential decay, 37-7
  - Faraday's, 43-6
  - Fick's, 32-3, 42-3
  - Fourier's, 31-1
  - fourth-power, 31-3
  - Gauss', 43-4
  - Henry's, 29-2, 39-1
  - Hess', 39-2
  - Hooke's, 18-1, 41-2
  - Joule's, 44-2
  - Kirchhoff, 44-3, 44-4
  - Lenz', 43-6
  - Newton's first, 15-1
  - Newton's second, 15-2
  - of additive effects, 34-8
  - of compound probability, 6-1
  - of constant proportions, 37-5
  - of convection, Newton's, 31-2
  - of cosines, 4-6
  - of definite proportions, 37-5
  - of joint probability, 6-1
  - of mass action, 38-2, 38-3
  - of mass conservation (fluid), 24-1
  - of multiple proportions, 37-5
  - of simple proportions, 37-5
  - of sines, 4-6

- of thermodynamics, first, 27-2, 27-3
  - of thermodynamics, second, 28-6
  - of thermodynamics, zeroth, 26-4
  - of total probability, 6-1
  - of viscosity, Newton's, 22-3
  - Pascal's, 23-1
  - perfect gas, 25-2
  - periodic, 37-1
  - power (fluid), 22-3, 24-3
  - Raoult's, 29-2, 39-3
  - Stefan-Boltzmann, 31-3
  - LC-50, 34-5
  - LD-50, 34-5
  - Lead, 12-2
    - exposure to, 35-6
  - Leading
    - circuit, 45-5
    - current, 45-3
  - Le Châtelier's principle, 38-2
  - Legal concentration, 34-5
  - Legionnaires' disease, 35-17
  - LEL, 35-4 (tbl), 35-5
  - Length, effective column, 21-2
  - Lenz' law, 43-6
  - Lethal dose, 34-5
  - Leukemia, 34-4
  - Level
    - confidence, 6-4
    - sound power, 35-8
    - sound pressure, 35-8
  - Lever rule (alloys), 42-5
  - LFL, 35-5
  - L'Hôpital's rule, 7-2, 7-3
  - Life
    - fatigue, 41-4
    - half-, 37-7
    - service, 52-1
  - Lifting, 35-12
  - Limit, 7-2
    - confidence, 6-4
    - elastic, 41-2
    - endurance, 41-4
    - explosive, upper, 35-5
    - fatigue, 41-4
    - flammable, upper, 35-5
    - lower explosive, 35-5
    - lower flammable, 35-5
    - proportionality, 41-2
    - value, threshold, 35-3
  - Line
    - centroid of, 13-1
    - charge, 43-3
    - defect, 42-3
    - energy, fluid, 24-2
    - energy grade, 24-2
    - hydraulic grade, 24-2
    - liquidus, 42-3
    - of action (vector), 5-5
    - saturated liquid, 26-3
    - saturated vapor, 26-3
    - solidus, 42-3
    - straight, 4-1
  - Linear
    - circuit, 44-3
    - differential equation, 8-1
    - equations, simultaneous, 5-4
    - expansion, thermal, 19-1
    - impulse, 17-2
    - kinetic energy, 17-1
    - momentum, 15-1
    - strain, 18-1, 41-2
    - system, 14-1
  - Linearity (Laplace transforms), 8-3, 49-1
  - Lines
    - intersecting, 4-1
    - perpendicular, 4-1
  - Linked list, 48-6
  - Liquid
    - saturated, 26-2
    - subcooled, 26-2, 26-3
  - Liquidus line, 42-3
  - Liquid-vapor mixture, 26-2, 26-3, 26-6
  - Lithotroph, 33-6
  - Liver, 34-3, 34-4
  - Load
    - buckling (column), 21-2
    - critical (column), 21-2
    - elongation curve, 41-1
    - Euler, 21-2
  - Loader, 48-2
  - Loading
    - axial, 21-1
    - biaxial, 18-2
    - BOD, 36-4
    - concentric, 21-1
    - eccentric, 21-1
    - rate, solids, 36-3
    - triaxial, 18-2
    - uniaxial, 18-2
  - Local
    - area network, 47-6
    - variable, 48-3
  - LOEL, 34-5
  - Log (*see* Logarithm)
  - Logarithm, 5-1
  - Logarithmic
    - growth phase, 33-4
    - mean area, 31-2
  - Long
    - column, 21-1
    - stress, 19-2
  - Logistic
    - equation, 33-4
    - growth rate constant, 33-4
  - Longitudinal
    - fin, 31-3
    - strain, 18-1
    - stress, 19-2
  - Loop
    - checking, 47-6
    - current method, 44-5
    - gain, 50-2
    - transfer, 50-2
  - Loss
    - coefficient, 24-6
    - head, minor, 24-6
    - minor, 24-6
  - Loudness, 35-8
  - Low-cycle fatigue theory, 41-4
  - Lower
    - explosive limit, 35-5
    - flammable limit, 35-5
  - Lowest
    - observed adverse effect level, 34-5
    - observed effect level, 34-5
  - LSI, 47-1
  - Lyme disease, 35-16
  - Lysosome, 33-2
- M**
- Mach number, 25-2, 26-8
  - Machine
    - DC, 46-3
    - language, 48-2
    - synchronous, 46-2
  - Maclaurin series, 5-8
  - Macro, 48-2
    - assembler, 48-2
    - commands, 47-2
    - fouling, 33-8
  - MACRS, 52-1
  - Magnetic
    - field, 43-5
    - field strength, 43-5
    - induction, 43-5
    - permeability, 43-5
    - sink, 43-5
    - source, 43-5
  - Main memory, 47-1
  - Major axis, ellipse, 4-3
  - Malignant tumor, 34-6
  - Manning's
    - equation, 24-10
    - roughness coefficient, 24-10
  - Manometer, 23-2, 25-3
  - Margin
    - gain, 50-6
    - phase, 50-6
  - Martempering, 42-7
  - Martensite, tempered, 42-7
  - Mass, 1-1, 26-4
    - action, law of, 38-2, 38-3
    - center of, 13-2
    - conservation of (fluid), 24-1
    - control, 27-2
    - density, 22-1
    - flow rate per unit area, 32-3
    - fraction, 29-1
    - moment of inertia, 16-1, 16-14 (tbl)
    - spring system, 15-3
    - storage device, 47-4
    - transfer, 32-2
    - transfer coefficient, 32-3
    - unit, atomic, 37-1
    - velocity, 32-3
  - Material
    - brittle, 41-3
    - composite, 42-8
    - Safety Data Sheet, 35-3
    - testing, 41-1
  - Matrices, 5-2
  - Matrix
    - coefficient, 5-5
    - composite material, 42-8
    - determinant, 5-3
    - identity, 5-3
    - inverse, 5-4
    - nonsingular, 5-4
    - operations, 5-3

- order, 5-3
  - singular, 5-4
  - transpose, 5-3
  - triangular, 5-3
  - variable, 5-5
- Maturity date, 52-3
- Maxima, 7-1
- Maximum
  - normal stress theory, 18-5
  - point, 7-1
  - power transfer, 44-7
  - shear stress theory, 18-5
- Mean
  - area, logarithmic, 31-2
  - arithmetic, 6-2
  - geometric, 6-2
  - population, 6-2
  - sample, 6-2
  - stress, fatigue, 41-3
  - weighted, 6-2
- Means
  - difference of, 6-5
  - sum of, 6-5
- Measurement, 49-1
- Mechanical
  - advantage, 12-1
  - frequency, 46-1
  - similarity, 25-5
- Median, 6-2
- Medium electrolytic, 42-1
- Megabyte, 47-4
- Member
  - redundant, 10-4, 11-2
  - three-force, 10-3
  - two-force, 10-3
  - zero-force, 11-2
- Membrane
  - cell, 33-1
  - pumping, 33-3
- Memory
  - cache, 47-2
  - computer, 47-2
  - dynamic, 47-3
  - nonvolatile, 47-3
  - scratchpad, 47-3
  - video, 47-2
- Meniscus, 22-4
- Mensuration, 4-6
- Mercaptan compound, 33-10
- Mesh current method, 44-5
- Mesophile, 33-6 (tbl)
- Mesothelioma, 35-6
- Metabolism, 33-9
- Metal, 37-3
  - alkali, 37-3
  - alkaline earth, 37-3
  - base, 42-3
  - fume fever, 35-7
  - transition, 37-3
- Metallic bond, 40-4
- Metallurgy, 42-1
- Metals
  - FCC, 41-2, 41-5
  - HCP, 41-2, 41-5
- Metastasis, 34-6
- Meter
  - orifice, 25-3
  - venturi, 25-3
- Methane series, 38-5 (tbl)
- Method
  - annual cost, 53-1
  - annual return, 53-1
  - bisection, 9-1
  - capital recovery, 53-1
  - Newton's, roots, 9-2
  - of consistent deformations, 20-4
  - of joints, 11-2
  - of loss coefficients, 24-6
  - of sections, 11-2
  - of undetermined coefficients, 7-4, 8-2
  - parallelogram, 5-5
  - polygon, 5-5
  - present worth, 53-1
  - superposition, 44-5
- Metric system, 1-4
- Meyer hardness, 42-7
- Microbe, 33-4
  - organisms, 33-7 (tbl)
- Microorganisms, 33-4, 35-14
  - bioprocessing, 36-2
- Microprocessor, 47-1
- Microstrain, 49-3
- Miller index, 40-3
- Minima, 7-1
- Minimum
  - attractive rate of return, 53-1
  - point, 7-1
- Minor
  - axis, ellipse, 4-3
  - loss, 24-6
  - of a matrix element, 5-4
- Miscible alloy, 42-3
- Mist, airborne, 35-6
- Mitochondria, 33-2
- Mixing heater, 27-4
- Mixture
  - alloy, 42-4
  - gas, 26-2
  - ideal gas, 29-1
  - liquid-vapor, 26-2, 26-3, 26-6
  - properties, gas, 29-2
  - vapor-gas, 26-2
  - mks system, 1-4
- Mnemonic code, 48-2
- Mode, 6-2
- Model
  - AC machine, 46-4, 46-5
  - similar, 25-5
- Modem, 47-6
- Modified accelerated cost recovery
  - system, 52-1
- Modular ratio, 20-4
- Modulator-demodulator, 47-6
- Modulus, 43-1
  - of elasticity, 18-1, 41-2
  - of rigidity, 18-2
  - of toughness, 41-4
  - section, 20-3
  - shear, 18-2
  - Young's, 18-1, 41-2
- Mohr's circle, 18-4
- Molal
  - boiling point constant, 39-3
  - freezing point constant, 39-3
- Molality, 39-1
- Molar, 37-6
  - flux, 32-3
  - properties, gas mixture, 29-2
- Molarity, 39-1
- Mole, 37-5
- Molecular
  - diffusion, 32-3
  - formula, biomass, 33-11
  - weight, 37-6
- Molecule, 37-1, 37-4, 40-4
- Mole fraction, 29-1, 39-1
- Mollusk, 33-8
- Moment, 10-2, 20-1
  - and shear relationship, 20-2
  - arm, 10-2
  - coupling, 10-3
  - diagram, 20-2
  - first, 20-3
  - free, 10-3
  - of inertia, 7-4, 13-2, 13-14 (tbl)
  - of inertia, centroidal, 7-4, 13-2, 13-14 (tbl)
  - of inertia, mass, 16-1, 16-14 (tbl)
  - of inertia, polar, 13-2, 13-14 (tbl), 19-3
  - of the area, first, 7-4, 13-1
  - of the area, second, 13-2
  - sign convention, 20-2
  - statical, 13-1, 20-3
- Momentum, 15-1
  - angular, 16-2
  - conservation, law, 15-1
  - fluid, 24-7
  - impulse principle, 17-2, 24-6
  - linear, 15-1
  - rate of, 24-7
  - transfer, 32-1, 32-2
- Money, time value of, 51-2
- Monitor program, 47-2
- Monochromatic radiation, 31-2
- Monoclinic cell, 40-1
- Monod kinetics, 36-2
- Monohydroxic base, 38-4
- Monoprotic acid, 38-4
- Moody friction factor, 32-2
- Moody friction factor chart, 24-5
- Most probable number index, 33-9
- Motion
  - angular, 14-3
  - circulation, 14-3
  - curvilinear, 14-2
  - plane circular, 14-3
  - plane, rigid body, 16-2
  - projectile, 14-3
  - rectilinear, 14-1
  - rotational particle, 14-3
  - simple harmonic, 15-3
- Motor, synchronous, 46-2
- Moving blade, force on, 24-8
- MPN, 33-9
- MSDS, 35-3
- Multipath pipeline, 24-9
- Multiple proportions, law of, 37-5
- Multiplexer, 47-4

- Multitasking, 47-5
- Multi-user, 47-5
- Mussell, Zebra, 33-8
- Mycotoxin, 35-15
- N**
- Naming compounds, 37-4
- Narrow-band line, 47-6
- National Institute for Occupational Safety and Health, 35-2
- Natural
  - convection, 31-1
  - frequency, 8-3
  - frequency of vibration, 15-4
  - logarithm, 5-1
  - vibration, 15-3
- NCRP, 35-10
- Neck tension, syndrome, 35-13
- Negative feedback, 50-1
- NEL, 34-5
- Neoplasm, 34-6
- Nephrotoxicity, 34-4
- Nernst theorem, 26-5
- Nervous system, 34-4
- Neurotoxicity, 34-4
- Neutral
  - axis, 20-2, 20-3
  - solution, 38-4
- Neutron, 37-1
  - radiation, 35-10
- Newton's
  - first law of motion, 15-1
  - law of convection, 31-2
  - law of viscosity, 22-3
  - method, roots, 9-2
  - second law of motion, 15-1
- Nibble, 47-2
- Nine-track tape, 47-5
- NIOSH, 34-8, 35-2
- Nitrate nitrogen, 33-6
- Nitrile, 38-4 (tbl), 38-5 (tbl)
- Nitro, 38-4 (tbl)
- No observed
  - adverse effect level, 34-5
  - effect level, 34-5
  - effect, 34-5
- NOAEL, 34-5
- Noble gas, 37-3
- Node, 48-6
  - voltage method, 44-6
- NOEL, 34-5
- Noise, 35-7, 35-9
  - control, 35-9
  - exposure factors, 35-9
  - exposure, permissible, 35-8 (tbl)
  - induced hearing loss, 35-9
  - reduction rating, 35-9
- Nominal interest rate, 51-5
- Nonannual compounding, 51-5
- Noncarcinogen, 34-5
- Nonhomogeneous differential equation, 8-2
- Non-ionizing radiation, 35-10
- Non-Newtonian
  - fluid, 22-3
  - Reynolds number, 24-4
- Nonphotosynthetic bacteria, 33-6
- Nonpolar covalent bond, 37-4
- Nonpolar water, 33-4
- Nonsingular matrix, 5-4
- Nonvolatile memory, 47-3
- Normal
  - acceleration, 14-3, 16-3
  - component, 15-3
  - distribution, 6-3
  - force, 12-2, 15-2
  - stress, 18-1
  - stress (in a fluid), 22-2
  - stress theory, maximum, 18-5
  - table, unit, 6-4, 6-12 (tbl)
- Normality, 39-1
- Norton's
  - equivalent, 44-6
  - theorem, 44-6
- Norwalk virus, 33-6
- Notch toughness, 41-4
- Nozzle, 27-4
- Nozzle efficiency, 27-4
- NRR, 35-9
- Nuclear radiation, 35-10
- Nucleon, 37-1
- Null
  - indicating bridge, 49-3
  - indicator, 49-3
  - vector, 5-6
- Number
  - atomic, 37-1
  - Avogadro's, 37-6
  - Cauchy, 25-5
  - complex, 5-1
  - coordination, 40-3
  - critical Reynolds, 24-4
  - Froude, 25-5
  - imaginary, 5-1
  - irrational, 5-1
  - Mach, 25-2, 26-8
  - of atoms in a cell, 40-2, 40-3 (tbl)
  - oxidation, 37-4
  - Prandtl, 32-2
  - rational, 5-1
  - real, 5-1
  - Reynolds, 24-3, 25-5
  - Schmidt, 32-3
  - Sherwood, 32-3
  - Stanton, 32-3
  - Weber, 25-5
- Numerical
  - analysis, 9-1
  - event, 6-2
- Nyquist rate, 49-4
- O**
- Obligate
  - aerobe, 33-6
  - anaerobe, 33-6
- Observability, system, 50-7
- Observed effect level, 34-5
- Occupational Safety and Health Act, 34-8, 35-2
- Odd parity, 47-3
- Offset, parallel, 41-2
- Offspring node, 48-6
- Ohm's law, 44-3
  - AC, 45-4
- Olefin series, 38-5 (tbl)
- One-tail confidence limit, 6-4
- Open
  - channel flow, 24-6, 24-11
  - feedwater heater, 27-4
  - loop gain, 50-2
  - manometer, 23-2
  - system, 27-2, 27-3
  - system, steady-flow, 27-2
- Operating system, 47-2
- Operations
  - matrix, 5-3
  - vector, 5-5
- Opposite side, 4-4
- Optical drive, 47-4
- Order
  - differential equation, 8-1
  - of a matrix, 5-3
  - of a reaction, 38-3
  - of difference equation, 4-5
  - of the system, 50-2
- Organelle, 33-1
- Organic
  - acid, 38-5 (tbl)
  - chemistry, 38-4
  - compound, 38-4
  - compound family, 38-4
  - functional group, 38-4
  - loading rate, 36-3
- Organism
  - indicator, 33-9
  - microbe, 33-7 (tbl)
- Organismal growth, 33-3
- Organotroph, 33-6
- Orifice
  - meter, 25-3
  - plate, 25-3
  - submerged, 25-4
- Orthorhombic cell, 40-1
- OS, 47-2
- Oscillation, period of, 15-4
- OSHA, 34-8, 35-2
  - noise, 35-9
- Otto cycle, 28-3
- Output
  - matrix, 50-7
  - vector, 50-7
- Overall transfer function, 50-2
- Overdamped, 8-1
- Overhead, computer, 48-3
- Oxidation, 37-3, 38-1
  - number, 37-4, 37-5 (tbl)
  - potential, 42-1, 42-2 (tbl)
  - reduction reaction, 38-1
  - state, 37-4
- Oxidizing agent, 38-1
- Oxygen demand, biochemical, 33-9
- P**
- Packing factor, 40-3
- Panel (truss), 11-1
- Parabola, 4-2
  - center, 4-2
  - directrix, 4-2
  - focus, 4-2
  - latus rectum, 4-2
  - mensuration, 4-6
- Paraboloid of revolution, 4-7

- Paradox, hydrostatic, 23-1  
Paraffin series, 38-5 (tbl)  
Parallel  
  axis theorem, 7-5, 13-2, 16-1  
  capacitors, 44-3  
  device, 47-3  
  interface, 47-3  
  offset, 41-2  
  pipeline, 24-9  
  plate capacitor, 44-2  
  resistance, 44-2  
  RLC, 45-6  
Parallelogram, 4-7  
Parallelogram method, 5-5  
Parasite, aquatic, 33-8  
Parent  
  ingredient, 42-3  
  node, 48-6  
Parity, 47-3  
Parseval  
  equality, 8-3  
  relation, 8-3  
Partial  
  derivative, 7-2  
  fraction, 7-4  
  pressure, 29-2  
  pressure ratio, 29-2  
  volume, 29-2  
Particle  
  kinetics, 15-3  
  motion, rotational, 14-3  
Particular solution, 8-2  
Particulate, 35-6  
Partition coefficient, 33-3  
Parts, integration by, 7-3  
Pascal's law, 23-1  
Passing element, electrical, 44-1  
Passive  
  circuit element, 45-3  
  diffusion, 33-3  
  system, 50-5  
Path of projectile, 14-3  
Pathogen, 33-4, 33-5 (tbl)  
  blood-borne, 35-16  
Pathway, exposure, 34-2  
Pay-back period, 53-2  
P-code, 48-3  
Pearlite, 42-5  
Pedestal, 21-2  
PEL, 34-8  
  noise, 35-9  
Pendulum, torsional, 16-3  
Percent  
  elongation, at failure 41-3  
  excess air, 30-2  
  slip, 46-3  
  theoretical air, 30-2  
Perfect gas, 26-2 (*see also* Ideal gas)  
Performance, coefficient of, 28-5  
Perimeter, wetted, 24-6  
Period  
  depreciation, 52-1  
  of oscillation, 15-4  
  pay-back, 53-2  
  transient, 31-1  
  waveform, 8-3, 45-2  
Periodic  
  law, 37-1  
  table, 37-1, 37-2  
Peripheral  
  devices, 47-1  
  nervous system, 34-4  
Peritectic reaction, 42-4 (tbl)  
Peritectoid reaction, 42-4 (tbl)  
Permanent set, 41-2  
Permeability  
  clothing, 35-12  
  magnetic, 43-5  
  of free-space, 43-5  
Permeation rate, 35-5  
Permissible  
  exposure level, noise, 35-9  
  exposure limit, 34-8, 35-3  
Permittivity, 43-3  
Permutation, 6-1  
Perpendicular  
  axis theorem, 13-2  
  lines, 4-1  
Persistence, 33-11  
Personal protective equipment, 35-5  
pH, 38-4  
Phase  
  alloy, 42-3  
  angle, 45-3  
  angle, sinusoidal, 45-1  
  characteristic, 50-5  
  crossover frequency, 50-6  
  diagram, 26-2, 42-3  
  diagram, binary, 42-3  
  growth, organismal, 33-3, 33-4  
  margin, 50-6  
  rule, Gibbs', 29-5, 42-5  
  shift, 45-3  
  thermodynamic, 26-1  
Phasor form, 43-1, 43-2  
Phenol, 38-5 (tbl)  
Photoautotroph, 33-8  
Photosynthesis, 33-2  
Phototroph, 33-6  
Physical hazard, 35-2  
Pier, 21-2  
Pi-group, 25-5  
Pin joint, 11-1  
Pinned support, 10-5  
Pipe  
  bend, 24-7  
  fitting, 24-6  
Pipeline  
  multipath, 24-9  
  parallel, 24-9  
Pitch  
  angle, 12-2  
  screw, 12-2  
Pitot tube, 25-2  
Planar defect, 42-3  
Plane  
  circular motion, 14-3  
  motion, rigid body, 16-2  
  stress, 18-3  
  surface, submerged, 23-3  
Plant, 50-7  
Plasma, 34-3  
Plastic  
  impact, 17-3  
  strain, 41-2  
Plate, orifice, 25-3  
Platelet, 34-3  
Platter, 47-4  
pOH, 38-4  
Point  
  boiling, 26-4  
  contraflexure, 7-1  
  critical, 7-1, 26-2 (fig), 26-3, 42-5  
  defect, 42-3  
  extreme, 7-1  
  ice, 26-4  
  inflection, 7-1  
  lattice, 40-3  
  maximum, 7-1  
  minimum, 7-1  
  of instability, 50-6  
  -slope form, line, 4-1  
  stagnation, 25-2  
  triple, 26-3, 26-4  
  triple, water, 42-6  
  yield, 41-2  
Points, distance between, 4-1, 4-4  
Poisson's ratio, 18-1  
Polar  
  coordinates, 5-2  
  covalent bond, 37-4  
  form, 5-2, 43-1, 43-2  
  form, sinusoidal, 45-2  
  moment of inertia, 13-2, 13-14 (tbl), 19-3  
Pole  
  magnetic, 43-5  
  stability, 50-3  
  -zero diagram, 50-3  
Polygon  
  mensuration, 4-7  
  method, 5-5  
Polysaccharide, 38-5 (tbl)  
Polytropic process, 27-1, 27-3  
Pond, facultative, 36-3  
Population, 6-2  
Portable language, 48-3  
Position  
  forms of, 14-2  
  vector, 10-2  
Positive feedback, 50-1  
Potency factor, 34-6  
Potential  
  difference, 43-4, 44-1  
  energy, 17-2  
  energy, elastic, 17-2  
  energy (fluid), 24-2  
  energy, gravitational, 17-2  
  gradient, electric, 43-4  
  half-cell, 42-1, 42-2 (tbl)  
  head, 24-2  
  oxidation, 42-1, 42-2 (tbl)  
  reduction, 42-1, 42-2 (tbl)  
Power  
  angle, 45-5  
  brake pump, 25-2  
  cycle, 28-1, 28-2  
  dissipation, motor, 46-5  
  electrical, 44-2

- factor, 45-5
  - factor correction, 45-5
  - hydraulic, 25-1
  - law (fluid), 22-3, 24-3
  - level, sound, 35-8
  - pump, 25-1
  - screw, 12-2
  - series, 5-7
  - shaft, 27-3
  - reactive, 45-5
  - real, 45-5
  - resistive element, 44-2
  - transfer, maximum, 44-7
  - turbine (fluid), 24-9
  - water, 25-1
  - Prandtl number, 32-2
  - Precipitation, 39-2
  - Precision, 49-2
  - Present worth, 51-3
    - analysis, 53-1
    - method, 53-1
  - Pressure, 22-2, 26-4
    - absolute, 22-2
    - average fluid, 23-3
    - barometric, 22-2
    - center of, 23-4
    - drop in a pipe, 24-3
    - energy, 24-2
    - flow, 24-6
    - fluid, 23-1
    - gage, 22-2
    - head, 24-2
    - hydrostatic, 23-1, 23-3
    - partial, 29-2
    - ratio, partial, 29-2
    - saturation, 29-3
    - sound, 35-8
    - stagnation, 25-3
    - standard atmospheric, 22-2, 26-4 (tbl)
    - vapor, 35-3
    - vessel, 19-2
    - vessel, thick-walled, 19-3
  - Primary
    - bond, 40-4
    - dimensions, 25-4
    - winding, 45-7
  - Principal
    - Archimedes', 23-5
    - energy conservation, 17-2
    - impulse-momentum, 17-2, 24-6
    - Le Châtelier's, 38-2
    - stress, 18-3
    - stress (tanks), 19-2
  - Prion, 35-14
  - Priority, ethical, 54-2
  - Probabilistic economics problems, 52-3
  - Probable risk, 34-7
  - Probability, 6-1
    - complementary, 6-1
    - compound, law of, 6-1
    - conditional, 6-1
    - density function, 6-3
    - distribution function, 6-3
    - joint, law of, 6-1
    - total, law of, 6-1
  - Probing, 48-5
  - Problem, initial value, 8-2
  - Procedure-oriented programming, 48-3
  - Process
    - activated sludge, 36-2
    - adiabatic, 25-2, 27-1
    - constant entropy, 27-1
    - constant pressure, 27-1–27-3
    - constant temperature, 27-1, 27-3
    - constant volume, 27-1, 27-2
    - irreversibility, 28-6
    - isentropic, 25-2, 26-8, 27-1, 27-3
    - isobaric, 27-1
    - isochoric, 27-1
    - isometric, 27-1
    - isothermal, 27-1, 27-3
    - polytropic, 27-1, 27-3
    - quasiequilibrium, 27-1
    - quasistatic, 27-1
    - reversible, 27-2
    - thermodynamic, 27-1
    - throttling, 27-1, 27-4
  - Processing, thermal, 42-6
  - Product, 38-1
    - cross, 5-6
    - dot, 5-5
    - of inertia, 13-3, 16-14 (tbl)
    - scalar, 5-5
    - solubility, 39-2
    - vector, 5-6
  - Production, entropy, 26-5
  - Professional conduct, rule, 54-1
  - Program
    - computer, 48-1
    - counter, 47-1
  - Progression, 5-7
    - arithmetic, 5-7
    - geometric, 5-7
    - state, cancer, 34-6
  - Project cost, 51-2
  - Projectile
    - motion, 14-3
    - path, 14-3
  - Prokaryote, 33-1, 35-14
  - Promotion stage, cancer, 34-6
  - Pronator syndrome, 35-13
  - Properties
    - gas mixture, 29-2
    - of acids, 38-4
    - of air, 25-2
    - of bases, 38-4
    - of water, 22-4
    - structure-sensitive, 42-3
  - Property
    - extensive, 26-3
    - intensive, 26-3
  - Proportional
    - region, 41-2
    - strain, 41-2
  - Proportionality limit, 41-2
  - Proportions
    - law of constant, 37-5
    - law of definite, 37-5
    - law of multiple, 37-5
    - law of simple, 37-5
  - Propulsion, jet, 24-8
  - Protection, hearing, 35-9
  - Protective equipment, personal, 35-5
  - Protein allergen, 35-14
  - Protista, 33-4
  - Proton, 37-1
  - Prototype, similar, 25-5
  - Protozoa, 33-8
    - flagellated, 33-8
  - Pseudocode, 48-3
  - Pseudoplastic fluid, 22-3, 24-4
  - Psittacosis, 35-15
  - Psychrometric chart, 29-3, 29-4 (fig)
  - Psychrometrics, 29-3
  - Psychrophile, 33-6 (tbl)
  - Public, ethics, 54-3
  - Pulley, 12-1
    - advantage, 12-1
    - fixed, 12-1
    - free, 12-1
  - Pulmonary toxicity, 34-3
  - Pump, 27-4
    - efficiency, 25-2
    - heat, 28-5
    - power, 25-1
    - power, brake, 25-2
  - Pumping, membrane, 33-3
  - Pushdown stack, 47-1
  - $p$ - $V$  work, 26-5, 27-2
  - Pyrex, 19-2
- Q**
- Quadratic equation, 4-1
  - Quality, 26-6
    - electrical, 45-6
    - factor, 50-5
    - radiation, 35-10
  - Quantity, break even, 53-2
  - Quasiequilibrium, 27-2
  - Quasiequilibrium process, 27-1
  - Quasistatic process, 27-1
  - Quenching, 42-7
  - Quicksort, 48-5
  - Quotient, respiratory, 33-11
- R**
- Radial component, 14-2, 15-3
  - Radiant heat transfer, 31-3
  - Radiation, 31-1, 31-2
    - effect on humans, 35-11
    - exposure to, 35-10
    - monochromatic, 31-2
    - spectral, 31-2
  - Radiator
    - efficiency, 31-3
    - ideal, 31-2
  - Radical, 37-5 (tbl)
  - Radioactive
    - decay, 35-11, 37-6
    - dust, 35-7
  - Radius
    - hydraulic, 24-6
    - of curvature, 7-2, 14-3, 20-4
    - of gyration, 13-3, 13-14 (tbl), 16-2, 16-14 (tbl)
  - RAM, 47-3
  - Random
    - access device, 47-4

- file, 48-4
- variable, 6-3
- Rankine
  - cycle, 28-2, 28-3
  - temperature, 26-4
- Raoult's law, 29-2, 39-3
- Rate
  - annual effective interest, 51-5
  - inflation, 52-3
  - interest, effective, 51-2
  - nominal interest, 51-5
  - of momentum, 24-7
  - of reaction, 38-2
  - of refrigeration, 28-5
  - of return analysis, 53-1
  - of return, minimum attractive, 53-1
  - of shear formation, 22-3
  - of strain (fluid), 22-3
  - per annum, 51-5
  - permeation, 35-5
  - shear, 22-3
- Ratio
  - air-fuel, 30-2
  - benefit-cost, 53-2
  - common, 5-7
  - compression, 28-4
  - critical slenderness, 21-2
  - hazard, 34-8
  - humidity, 29-3
  - modular, 20-4
  - of specific heats, 25-2, 26-8
  - of transformation, 45-7
  - partial pressure, 29-2
  - Poisson's, 18-1
  - recycle, 36-3
  - slenderness, 21-2
  - turns, 45-7
  - vapor-hazard number, 35-5
- Rationalizing the denominator, 5-2, 43-2
- Rational number, 5-1
- Raynaud's syndrome, 35-14
- RC transient, 44-7
- RDRAM, 47-3
- Reactance, capacitive, 45-4
- Reactant, 38-1
- Reaction, 10-4, 10-6
  - biologic, 33-11
  - chemical, 38-1
  - combustion, 30-1
  - electrochemical, 39-3
  - electrolytic, 39-3
  - endothermic, 39-2
  - enthalpy of, 39-2
  - exothermic, 39-2
  - heat of, 39-2
  - order of, 38-3
  - oxidation-reduction, 38-1
  - rate of, 38-2
  - redox, 38-1
  - reversible, 38-2
  - speed of, 38-2
- Reactive
  - part, 45-3
  - power, 45-5
- Reactivity, 35-3
- Read-only, 47-4
- Read-write, 47-4
- Real
  - gas, 26-2
  - number, 5-1, 43-1
  - part, 45-3
  - power, 45-5
  - time processing, 47-5
- Receipt (cash), 51-1
- Recommended Exposure Limits, 35-2
- Recording density, 47-5
- Recovery, 41-2, 42-7
- Recrystallization temperature, 42-6
- Rectangular
  - coordinate form (position), 14-2
  - coordinates, 14-1
  - fin, 31-3
  - form, 43-1, 43-2
  - form, complex number, 5-1, 5-2
  - sinusoidal, 45-2
- Rectilinear motion, 14-1
- Rectum
  - latus, ellipse, 4-3
  - latus, parabola, 4-2
- Recursive call, 48-3
- Recycle
  - flow rate, 36-3
  - ratio, 36-3
- Red blood cell, 34-3
- Redox reaction, 38-1
- Reduced
  - equation, 8-2
- Reducing agent, 38-2
- Reduction, 37-3, 38-1
  - degree of, 33-11
  - potential, 42-1, 42-2 (tbl)
- Redundant
  - member, 10-4, 11-2
  - support, 10-4
- Reference
  - concentration, 34-5
  - dose, 34-5
  - value, 50-7
- Reflectivity, 31-2
- Refrigeration
  - cycle, 28-4
  - rate, 28-5
- Region
  - elastic, 41-2
  - proportional, 41-2
  - transition, 24-4
- Register, instruction, 47-1
- Relation, Parseval, 8-3
- Relative
  - column, 48-4
  - dispersion, 6-3
  - humidity, 29-3
  - roughness, 24-5
  - stability, 50-5
  - velocity difference, 24-8
- Reliability, 49-2
- Relief, stress, 47-7
- Reovirus, 33-6
- Repetitive stress, 35-13
- Reproductive toxicity, 34-4
- Reservoir, heat, 28-1
- Residence time, 36-4
- hydraulic, 36-2, 36-3
- Resistance, 44-2
  - temperature detector, 49-2
  - thermal, 31-2
  - thermal coefficient of, 44-2
- Resistive
  - circuit, 44-4
  - part, 45-3
- Resistivity, 44-1, 44-2
- Resistor, 44-2
  - ideal, 45-3
- Resonance, 8-2, 45-5
- Resonant
  - circuit, 45-5
  - frequency, 45-5
- Respirator, 35-7
- Respiratory quotient, 33-11
- Respiratory tract, 34-2
- Response, 50-2
  - equation, 50-7
  - versus dose, 34-4
  - steady-state, 50-3
- Restitution, coefficient of, 17-3
- Resultant, 10-1
  - hydrostatic, 23-3, 23-4
  - vector, 5-5
- Reticulum, endoplasmic, 33-2
- Return
  - minimum attractive rate, 53-1
  - rate of, 53-1
- Reverse transfer function, 50-2
- Reversible
  - process, 27-2
  - reaction, 38-2
  - work, 27-2
- Revolution, paraboloid of, 4-8
- Reynolds number, 24-3-25-5
- RfC, 34-5
- RfD, 34-5
- Rhombohedral cell, 40-1
- Ribonucleic acid, 33-2
- Right
  - circular cone, mensuration, 4-7
  - circular cylinder, mensuration, 4-7
  - hand rule, 5-6, 10-2, 43-5
  - triangle, 4-4
- Rigid
  - body, 14-1
  - body plane motion, 16-2
  - truss, 11-1
- Rigidity, modulus of, 18-2
- Ring
  - benzene, 38-4 (tbl)
  - slender, 16-14
- Ripple, electrical, 46-4
- Risk, probable, 34-7
- RL transient, 44-7
- rms value, 6-2, 49-5
- RNA, 33-2
- Roadway banking, 16-3
- Rockwell hardness, 42-7
- Rocky Mountain spotted fever, 35-16
- Rod, slender, 16-14
- Roller support, 10-5
- Rolling wheel, 16-3
- Root

- double, 4-2
- node, 48-6
- locus diagram, 50-6
- mean-square, 35-8, 49-5
- mean-square value, 6-2, 45-2
- of quadratic, 4-1
- ROR, 53-1
- Rosette train gage, 49-3
- Rotating
  - beam test, 41-3
  - machine, 46-1
- Rotational
  - delay, 47-5
  - kinetic energy, 17-1
  - particle motion, 14-3
- Rotation, instantaneous center of, 16-2
- Rotavirus, 33-6
- Rotifer, 33-8
- Rotor, 46-1
- Roughness
  - relative, 24-5
  - specific, 24-5
- Roughness coefficient
  - Manning's, 24-10
  - Hazen-Williams, 24-10
- Routh
  - criterion, 50-6
  - table, 50-6
- RS-232, 47-4
- RTD, 49-2
- Rule
  - Amagat-Leduc, 29-2
  - Cramer's, 5-5
  - Gibbs' phase, 29-2, 29-5, 42-5
  - lever, 42-5
  - L'Hôpital's, 7-2, 7-3
  - professional conduct, 54-1
  - right-hand, 5-6, 10-2, 43-5
- Rules
  - of Professional Conduct, NCEES, 54-14
  - SI system, 1-6
- Runaway speed, 24-9
- S**
- Safe human dose, 34-5
- Safety solvent, 35-5
- Sample
  - mean, 6-2
  - standard deviation, 6-2
  - variance, 6-2
- Sampling, 49-4
- Saturated
  - air, 29-3
  - hydrocarbon, 38-5 (tbl)
  - liquid, 26-2
  - liquid line, 26-3
  - solution, 39-2
  - vapor, 26-2
  - vapor line, 26-3
- Saturation
  - magnetic, 46-3
  - pressure, 29-3
- Scalar, 5-5
- Schmidt number, 32-3
- Scientific condition, standard, 38-3
- Scratchpad memory, 47-3
- Screw, 12-2
- S-curve, 33-4
- SDRAM, 47-3
- Searching, 48-5
- Seat of EMF, 44-1
- Secant, 4-5
- Second
  - law of motion, Newton's, 15-1
  - law of thermodynamics, 28-6
  - moment of the area, 13-2
  - order differential equation, 8-1
- Secondary
  - bond, 40-4
  - winding, 45-7
- Section
  - conic, 4-2
  - modulus, 20-3
- Sections, method of, 11-2
- Sector, 47-4
  - circular, mensuration, 4-7
- Seek time, 47-5
- Segment
  - circular, mensuration, 4-7
  - commutator, 46-3
- Semimajor distance, ellipse, 4-3
- Sensitivity, 49-1
- Sequence, 5-6
  - convergent, 5-6
  - divergent, 5-6
- Sequential
  - access device, 47-5
  - file, 48-4
- Serial
  - device, 47-4
  - interface, 47-4
- Series, 5-7
  - capacitors, 44-3
  - finite, 5-7
  - Fourier, 8-2
  - galvanic, 42-1, 42-2 (tbl)
  - harmonic, 8-2
  - infinite, 5-7
  - Maclaurin, 5-8
  - methane, 38-5 (tbl)
  - olefin, 38-5 (tbl)
  - paraffin, 38-5 (tbl)
  - power, 5-7
  - resistance, 44-2
  - RLC, 45-6
  - Taylor's, 5-8
- Serum hepatitis, 35-16
- Service life, 52-1
- Servomechanism, 50-7
- Set, permanent, 41-2
- Shaft, 19-3
  - power, 27-3
  - work, 27-3
- Shannon's sampling theorem, 49-4
- Shape factor, 31-3
- Shear, 20-1
  - and moment relationship, 20-2
  - diagram, 20-2
  - flow, 19-3
  - formation, rate of, 22-3
  - modulus, 18-2
  - rate (fluid), 22-3
  - sign convention, 20-1
  - strain, 18-1
  - stress, 18-1
  - stress distribution, beam, 20-3
  - stress (in a fluid), 22-3
  - stress theory, maximum, 18-5
- Sheave, 12-1
- Sheet charge, 43-3
- Shell, 19-3
  - hollow, 19-3
  - thin-walled, 19-3
- Sherwood number, 32-3
- Shielding, radiation, 35-11
- Short-term exposure level, 34-7
- Shot peening, 41-4
- Side
  - adjacent, 4-4
  - opposite, 4-4
- Sievert, unit, 35-10
- Sigmoidal shape, 33-4
- Sign convention
  - moment, 20-2
  - shear, 20-1
  - thermodynamic, 27-2
- Silica, 35-6
- Similarity, 25-5
  - dynamic, 25-5
  - geometric, 25-5
  - kinematic, 25-5
  - mechanical, 25-5
- Similitude, 25-5
- Simple
  - asphyxiant, 35-3
  - harmonic motion, 15-3
  - interest, 51-5
  - proportions, law of 37-5
  - support, 10-5
- Simplex communication, 47-6
- Simultaneous linear equations, 5-4
- Sine, 4-5
  - cosine relationships, 45-1
  - law, 4-6
- Single payment
  - cash flow, 51-1
  - compound amount factor, 51-3
  - equivalence, 51-3
  - present worth factor, 51-3
- Singular matrix, 5-4
- Sink, reservoir, 28-1
- Sinking fund, 51-4
- Sinusoidal waveform, 45-1, 45-2
- Skin, 34-2
- SI system, 1-6
- Slender
  - ring, 16-14
  - rod, 16-14
- Slenderness ratio, 21-2
- Sliding plate viscometer, 22-3
- Slip
  - ac machine, 46-3
  - ring, 46-2
- Slope, 4-1
  - factor, 34-6
  - intercept form, line 4-1
- Sludge
  - activated, 36-2, 36-3 (tbl)
  - volume, 36-3

- Slug, 1-4
- Small intestine, 34-3
- S-N curve, 41-3
- Soft X-ray, 35-10
- Software, 48-1
  - flow control, 47-4
  - handshaking, 47-4
- Solid
  - phase, 26-2
  - solution alloy, 42-3
- Solids
  - in liquids, solutions of, 39-1
  - loading rate, 36-3
  - residence time, 36-3
- Solidus line, 42-3
- Solubility product, 39-2
- Solute, 39-2
- Solution
  - heat of, 39-2
  - neutral, 38-4
  - particular, 8-2
  - saturated, 39-2
- Solutions
  - of gases in liquids, 39-1
  - of solids in liquids, 39-1
- Solvent, 39-2
  - safety, 35-5
- Sorting, 48-5
- Sound, 35-7
  - audible, 35-7
  - intensity, 35-8
  - power level, 35-8
  - pressure, 35-8
  - pressure level, 35-8
  - sources, combining, 35-8
  - speed of, 25-2, 35-8 (tbl)
- Source
  - code, 48-1
  - equivalent, 44-6
  - electrical, dependent, 44-1
  - electrical, independent, 44-1
  - reservoir, 28-1
- Sources, sound, combining, 35-8
- Space, interstitial, 40-3
- Specific
  - gas constant, 25-2, 26-7
  - gravity, 22-2
  - heat, 26-5, 26-6 (tbl), 26-7 (tbl)
  - heat at constant pressure, 25-2
  - heat at constant volume, 25-2
  - heats, ratio of, 25-2, 26-8
  - humidity, 29-3
  - kinetic energy (fluid), 24-2
  - potential energy, 24-2
  - pressure energy, 24-2
  - roughness, 24-5
  - volume, 22-1, 26-4
  - weight, 1-3, 22-1
- Specimen, test, 41-1
- Spectral radiation, 31-2
- Speed
  - of efflux, Torricelli's, 24-8
  - of reaction, 38-2
  - of sound, 25-2, 35-8
  - runaway, 24-9
  - synchronous, 46-1, 46-2
- Sphere, 4-4
  - general form, 4-4
  - mensuration, 4-7
  - solid, 16-14
  - standard form, 4-4
- Spherical tank, 19-2
- s-plane, 50-3
- Split-ring, 46-3
- Spring
  - constant, 17-2
  - constant, torsional, 19-3
  - mass system, 15-3
  - stiffness, 17-2
- Spreadsheet, 48-4
- Square screw threads, 12-2
- Stability, 49-2, 50-5
  - relative, 50-5
- Stable system, 50-5
- Stack, 47-1
- Stack-up, 49-5
- Stagnation
  - point, 25-2
  - pressure, 25-3
- Standard
  - atmospheric pressure, 22-2, 26-4 (tbl)
  - deviation, 6-2
  - form, circle, 4-4
  - form, ellipse, 4-3
  - form, hyperbola, 4-3
  - form, parabola, 4-2
  - form, sphere, 4-4
  - form, straight line, 4-1
  - oxidation potential, 42-1, 42-2 (tbl)
  - rate digester, 36-4
  - scientific condition, 38-3
  - state, enthalpy, 39-2
- Stanton
  - diagram, 24-5
  - number, 32-3
- Start bit, 47-6
- State
  - equation of, 25-2, 26-7, 38-3
  - oxidation, 37-4
  - standard, enthalpy, 39-2
  - thermodynamic, 26-1
- Statement
  - Clausius, 28-6
  - Kelvin-Planck, 28-6
- Static, friction, 12-2, 15-2
- Statically
  - determinate, 10-4
  - determinate truss, 11-2
  - indeterminate, 10-4
- Statical moment, 13-1, 20-3
- Statics, 10-1, 23-1
- Stationary growth phase, 33-4
- Stator, 46-1
- Statute, 54-1
- Statutory rule, 54-1
- Steady
  - flow energy equation, 27-3
  - flow open system, 27-2
  - flow system, 27-3
  - state response, 50-3
- Steel, 42-5
- Steel beam, 20-4
- Stefan-Boltzmann
  - constant, 31-3
  - law, 31-3
- Stenothermophiles, 33-6 (tbl)
- Step-down transformer, 45-7
- Step-up transformer, 45-7
- Stiffness
  - spring, 17-2
  - torsional, 19-3
- Stoichiometric air, 30-1, 30-2
- Stoichiometry, biologic, 33-11
- Stop bit, 47-6
- Storage capacity, 47-4
- STP, 38-5
- Straight
  - fin, 31-3
  - line, 4-1
- Strain, 18-1, 41-1
  - axial, 18-1
  - elastic, 41-2
  - energy, 18-2, 41-4
  - engineering, 41-1
  - gage, 49-2
  - hardening, 42-6
  - heat, 35-12
  - inelastic, 41-2
  - linear, 18-1, 41-2
  - longitudinal, 18-1
  - plastic, 41-2
  - proportional, 41-2
  - rate of (fluid), 22-3
  - sensitivity factory, 49-3
  - shear, 18-1
  - thermal, 19-1
  - three-dimensional, 18-4
  - true, 41-1
- Streaming tape, 47-5
- Strength, 41-3
  - breaking, 41-3
  - fatigue, 41-4
  - magnetic field, 43-5
  - of acid, 38-4
  - of base, 38-4
  - of the B-field, 43-5
  - tensile, 41-2
  - ultimate, 41-2
  - yield, 41-2
- Stress, 18-1, 41-1
  - allowable, 18-5
  - beam, 20-2
  - bending, 20-2
  - circumferential, 19-2, 19-3
  - cold, 35-11, 35-12
  - combined, 18-3
  - concentration factor, 18-5
  - corrosion, 42-2
  - effective, 18-5
  - endurance, 41-4
  - engineering, 41-1
  - flexural, 20-2
  - heat, 35-11, 35-12
  - hoop, 19-2, 19-3
  - in a fluid, 22-2, 22-3
  - long, 19-2
  - longitudinal, 19-2
  - mean fatigue, 41-3

- normal, 18-1
- plane, 18-3
- principal, 18-3
- principal (tanks), 19-2
- relief, 42-7
- shaft, 19-3
- shear, 18-1
- shear, distribution, beam, 20-3
- tangential, 19-2, 19-3
- torsional, 19-3
- true, 41-1
- von Mises, 18-5
- yield, 41-2
- Strobe signal, 47-3
- Strong data type, 48-3
- Structural cell, 11-1
- Structure, cell, 33-1
- Structured programming, 48-3
- Structure-sensitive properties, 42-3
- Student's *t*-distribution, 6-4, 6-9 (tbl)
- Subcooled liquid, 26-2, 26-3
- Subcutaneous fatty tissue, 34-2
- Successive minima, 48-5
- Submerged
  - orifice, 25-4
  - plane surface, 23-3
- Substitution
  - integration by, 7-3
  - trigonometric, 7-3
- Sugars, 38-5 (tbl)
- Summer, 50-1
- Sum of means, 6-5
- Sunk cost, 51-1
- Superheated vapor, 26-2, 26-3
- Superheating, 28-3
- Superposition, 20-4
  - method, 44-5
  - Laplace transforms, 8-3
  - theorem, 44-5
- Supplementary unit, 1-4
- Supplier, ethics, 54-3
- Support
  - pinned, 10-5
  - reaction, 10-5
  - redundant, 10-4
  - roller, 10-5
  - simple, 10-5
- Surface
  - control, 27-2
  - extended, 31-3
  - free, 24-6
  - frictionless, 10-5
  - tension, 22-3
  - treatment, 41-4
- Surroundings, 27-2
- Susceptance, 45-4
- Suspension, 39-2
- Symbol, flowchart, 48-2
- Synchronous
  - machine, 46-2
  - memory, 47-3
  - motor, 46-2
  - speed, 46-1, 46-2
  - transmission, 47-6
- Syphilis, 35-16
- System
  - accelerated cost recovery, 52-1
  - boundary, 27-2
  - closed, 27-2
  - controllability, 50-7
  - English engineering, 1-2
  - English gravitational, 1-4
  - function, 50-2
  - isolated, 27-2
  - linear, 14-1
  - metric, 1-4
  - observability, 50-7
  - open, 27-2, 27-3
  - response, 50-2
  - spring-mass, 15-3
  - steady-flow, 27-3
  - steady-flow open, 27-2
  - steady-state, 27-3
  - thermodynamic, 27-2
- Systemic effect, 34-3
- T**
- Table, periodic, 37-1, 37-2 (tbl)
- Tangent, 4-5, 4-4
- Tangential
  - acceleration, 14-3
  - blade velocity, 24-9
  - component, 14-3, 15-3
  - stress, 19-2, 19-3
  - stress (in a fluid), 22-2
  - velocity, 14-3
- Tank
  - spherical, 19-2
  - thin-walled, 19-2
- Tape, streaming, 47-5
- Tapeworm, 33-8
- Taylor's
  - formula, 5-8
  - series, 5-8
- t*-distribution, 6-4, 6-5, 6-9 (tbl)
- TDM, 47-4
- Teleprocessing, 47-6
- Temperature, 26-4
  - absolute, 26-4
  - critical, 42-5
  - dew-point, 29-3
  - dry-bulb, 29-3
  - ductility transition, 41-4
  - eutectic, 42-4
  - fracture appearance transition, 41-5
  - fracture transition, 41-4
  - Kelvin, 26-4
  - Rankine, 26-4
  - range, bacterial growth, 33-6
  - recrystallization, 42-6
  - wet-bulb, 29-3
- Tempered martensite, 42-7
- Tempering, 42-7
- Tendency, central, 6-2
- Tendonitis, 35-13
- Tennis elbow, 35-13
- Tenosynovitis, 35-13
- Tensile
  - strength, 41-2
  - test, 41-1, 41-3
- Tension, surface, 22-3
- Tensor, 5-5
- Term, differential, 7-3
- Ternary
  - acid, 37-4
  - compound, 37-4
- Test
  - Charpy, 41-4
  - endurance, 41-3
  - fatigue, 41-3
  - for inflection point, 7-2
  - for maximum, 7-2
  - for minimum, 7-2
  - hardness, 42-7
  - hypothesis, 6-5
  - impact, 41-4
  - rotating beam, 41-3
  - tensile, 41-1, 41-3
- Testing, material, 41-1
- Tetanus, 35-17
- Tetragonal cell, 40-1
- Theorem
  - Buckingham  $\pi$ -, 25-5
  - buoyancy, 23-4
  - central limit, 6-4
  - final value, 8-3
  - final value, *z*-transform, 8-5
  - Fourier's, 8-2
  - fundamental of calculus, 7-3
  - Gibbs', 29-2
  - initial value, 8-3
  - initial value, *z*-transform, 8-5
  - Kalman, 50-7
  - Nernst, 26-5
  - parallel axis, 7-5, 13-2, 16-1
  - perpendicular axis, 13-2
  - Shannon's sampling, 49-4
  - superposition, 44-5
  - transfer axis, 7-5, 13-2
  - work-energy, 17-2
- Theoretical air, percent, 30-2
- Theory
  - Arrhenius, of acids, 38-3
  - Arrhenius, of bases, 38-4
  - distortion energy, 18-5
  - failure, 18-5
  - low-cycle fatigue, 41-4
  - maximum normal stress, 18-5
  - maximum shear stress, 18-5
- Thermal
  - coefficient of resistance, 44-2
  - efficiency, 28-2
  - equilibrium, 26-4
  - expansion, coefficient of, 19-1, 19-2 (tbl)
  - processing, 42-6
  - resistance, 31-1
  - strain, 19-1
  - stress, 35-11
- Thermistor, 49-2
- Thermodynamic
  - process, 27-1
  - sign convention, 27-2
  - state, 26-1
  - system, 27-2
- Thermodynamics
  - first law of, 27-3
  - second law of, 28-6
  - zeroth law of, 26-4

- Thermophile, 33-6 (tbl)
- Thevenin's  
equivalent, 44-6  
theorem, 44-6
- Thickness, half-value, 35-11
- Thick-walled pressure vessel, 19-2, 19-3
- Thin-walled  
shell, 19-3  
tank, 19-2
- Thread  
friction angle, 12-2  
screw, 12-2
- Threaded list, 48-6
- Three-force member, 10-4
- Threshold limit value, 34-7, 35-3  
ceiling, 34-8
- Throttling  
process, 27-1, 27-4  
valve, 27-4
- Ticks, 35-16
- Time  
breakthrough, 35-5  
constant, 44-7  
division multiplexing, 47-4  
-sharing, 47-5  
-temperature-transformation curve, 42-7  
value of money, 51-2  
-weighted average, 34-8
- Tip  
adiabatic, 31-3  
insulated, 31-3
- TLV, 34-7, 35-3, 35-4 (tbl), 35-6  
-C, 34-8  
noise, 35-9 (tbl)  
-STEL, 34-7
- Ton (refrigeration), 28-5
- Top-down programming, 48-3
- Toracic outlet Syndrome, 35-14
- Torque, 10-2  
DC motor, 46-5
- Toricelli's speed of efflux, 24-8
- Torsion, 19-3
- Torsional  
free vibration, 16-3  
pendulum, 16-3  
spring constant, 19-3  
stiffness, 19-3  
stress, 19-3
- Total  
coliform, 33-9  
probability, law of, 6-1
- Toughness, 41-4  
modulus of, 41-4  
notch, 41-4
- Toxic shock syndrome, 35-17
- Toxicant, 34-3
- Toxicity, 35-3  
pulmonary, 34-3
- Toxicology, 34-1
- Toxin, 35-14
- Toxoplasmosis, 35-16
- Track, hard drive, 47-4
- Trade-in allowance, 51-2
- Transducer, 49-1
- Transfer  
axis theorem, 7-5, 13-2  
energy, 32-1, 32-2  
function, 50-1  
heat, 31-1  
mass, 32-2  
momentum, 32-1, 32-2  
reverse, 50-2
- Transform  
Laplace, 8-3, 8-4 (tbl)  
 $z$ -, 8-5
- Transformation  
method, 20-4  
of axes (stress), 18-3  
ratio, 45-7
- Transformer  
electrical, 45-6  
ideal, 45-7
- Transient  
electrical, 44-7  
period, 31-1  
region, 24-4  
temperature, ductility, 41-4  
temperature, fracture, 41-4  
temperature, fracture appearance, 41-5
- Transition metals, 37-3
- Transmission  
speed, 47-4  
standard, 47-6
- Transmissivity, 31-2
- Transport  
cell, 33-3  
phenomena, 32-1  
phenomena analogy, 32-3
- Transpose matrix, 5-3
- Transverse  
axis, hyperbola, 4-3  
component, 14-2
- Treatability constant, 36-4
- Treatment  
heat, 42-6  
surface, 41-4
- Tree structure, 48-6
- Trestle, 11-1
- Triad, Cartesian, 5-5
- Triangle  
general, 4-6  
law of sines, 4-6  
right, 4-4
- Triangular matrix, 5-3
- Triaxial loading, 18-2
- Triclinic cell, 40-1
- Trigger finger, 35-14
- Trigonometric  
form, 43-1, 43-2  
form, complex number, 5-1, 5-2  
identities, 4-5  
sinusoidal, 45-2  
substitution, 7-3
- Trihydroxic base, 38-4
- Triple point, 26-3, 26-4, 42-6
- Triprotic acid, 38-4
- Tritium, 37-6
- True  
strain, 41-1  
stress, 41-1
- Truss, 11-1  
bridge, 11-1  
rigid, 11-1  
statically determinate, 11-2  
types of, 11-1
- TTT curve, 42-7
- Tube, pitot, 25-2
- Tuberculosis, 35-17
- Tumor, 34-6
- Turbine, 27-4  
impulse, 24-9  
power (fluid), 24-9
- Turbulent flow, 24-3, 24-4
- Turns ratio, 45-7
- TWA, 34-8
- Twist, angle of, 19-3
- Two-angle formula, 4-5
- Two-force member, 10-3
- Two-tail confidence limit, 6-5
- U**
- UEL, 35-4 (tbl), 35-5
- UFL, 35-5
- Ulnar  
artery Aneurysm, 35-14  
nerve entrapment, 35-14
- Ultimate  
analysis, 37-6  
strength, 41-2
- Unadjusted basis, 52-1
- Unbiased estimator, 6-2
- Uncertainty, measurement, 49-5
- Underdamped, 8-2
- Undetermined coefficients, method of, 7-4, 8-2
- Uniaxial loading, 18-2
- Uniform  
annual cost, equivalent, 52-2  
gradient factor, 51-5  
series cash flow, 51-1  
series compound amount factor, 51-3  
series equivalence, 51-3
- Unit  
atomic mass, 37-1  
base, 1-4  
British thermal, 26-5  
cell, 40-1  
circle, 4-5  
derived, 1-4  
normal table, 6-4, 6-8 (tbl)  
operation, 32-1  
supplementary, 1-4  
vector, 5-5, 10-1  
vector, Cartesian, 5-5  
vector form (position), 14-2  
weight, 1-3
- Units, 1-1  
consistent system of, 1-2  
of concentration, 39-1  
radiation, 35-10 (tbl)
- Universal  
gas constant, 25-2, 26-7 (tbl), 38-3  
serial bus, 47-4
- Universe (thermodynamic), 27-2
- Unsaturated  
air, 29-3  
hydrocarbon, 38-5 (tbl)

- Upper
  - explosive limit, 35-5
  - flammable limit, 35-5
- USB, 47-4
- V**
- Vacuole, 33-2
- Vacuum, 22-2
- Valence, 37-3, 37-5 (tbl)
- Value, 52-2
  - bond, 52-3
  - expected, 6-3, 52-3
  - face (of a bond), 52-3
  - future, 51-3
  - initial, problem, 8-2
  - present, 51-3
  - time, 51-2
- Valve, throttling, 27-4
- Van der Waals force, 40-4
- Vapor
  - dome, 26-2
  - gas mixture, 26-2
  - hazard ratio number, 35-5
  - pressure, 35-3
  - saturated, 26-2
  - superheated, 26-2, 26-3
- Variable
  - continuous random, 6-3
  - matrix, 5-5
  - of integration, 7-3
  - random, discrete, 6-3
- Variance, 6-2
- Variation, coefficient, 6-3
- Vector, 5-5
  - Cartesian unit, 5-5
  - complex power, 45-5
  - form (position), 14-2
  - identities, 5-6
  - null, 5-6
  - operations, 5-5
  - position, 10-2
  - product, 5-6
  - resultant, 5-5
  - unit, 5-5, 10-1
- Vector del operator, 7-5
- Velocity, 16-2
  - bulk, 24-4
  - coefficient of, 25-3
  - difference, relative, 24-8
  - distribution, fluid, 24-4
  - fluid jet, 24-8
  - gradient, 22-3
  - head, 24-2
  - mass, 32-3
  - noise, 35-8
  - of approach, 25-2
  - tangential, 14-3
  - tangential blade, 24-9
- Vena contracta, 25-3
- Ventilation, 35-5, 35-7, 35-12
  - dilution, 35-7
- Venturi meter, 25-3
- Vertex, 4-2
- Vessel
  - pressure, 19-2
  - pressure, thick-walled, 19-3
- Vibration
  - forced, 15-3
  - free, 15-3
  - natural, 15-3
  - natural frequency, 15-4
  - syndrome, 35-14
  - torsional, free, 16-3
- Vickers hardness, 42-7
- Video memory, 47-2
- Villi, 34-3
- Virtual
  - machine, 47-5
  - memory, 47-3
  - memory storage, 47-3
  - mode, 47-2
- Virus, 33-6, 35-14
- Viscometer, sliding plate, 22-3
- Viscosity, 22-3
  - absolute, 22-3
  - kinematic, 22-3
  - Newton's law of, 22-3
- Voice-grade line, 47-6
- Volatile
  - acid, 3-10
  - memory, 47-3
- Voltage, 43-4
  - induced, 43-6
  - source, ideal, 44-1
- Voltaic cell, 42-1
- Volume
  - centroid of, 13-1
  - control, 27-2
  - current density, 43-4
  - partial, 29-2
  - sludge, 36-3
  - specific, 22-1, 26-4
- von Mises stress, 18-5
- VRAM, 47-3
- W**
- Water
  - boiling point constant, 39-3
  - freezing point constant, 39-3
  - horsepower, 25-1
  - nonpotable, 33-4
  - power, 25-1
  - properties, 22-4
  - triple point, 42-6
- Waterborne disease, 33-11
- Weber number, 25-5
- Web (structural steel), 13-3
- Weight, 1-1, 1-3, 13-2, 15-2
  - and proportion problem, biologic, 33-11
  - atomic, 37-1
  - combining, 37-6
  - density, 1-3
  - equivalent, 37-6
  - formula, 37-6
  - molecular, 37-6
  - of evidence, 34-6
  - specific, 1-3, 22-1
- Weighted
  - mean, 6-2
  - root-mean-square, 49-5
- Welding fumes, 35-7
- Wet-bulb temperature, 29-3
- Wetted perimeter, 24-6
- Wheatstone bridge, 49-3
- Wheel, rolling, 16-3
- Whistle-blowing, 54-3
- White finger, 35-14
- Wide-band line, 47-6
- Work, 17-1
  - charge, 43-4
  - electrical, 44-2
  - energy theorem, 17-2
  - flow, 26-5, 27-2
  - graphical (thermodynamic), 28-6
  - hardening, 42-6
  - internal, 18-2
  - p-V*, 27-2
  - rest cycle, 35-12
  - reversible, 27-2
  - shaft, 27-3
- Working
  - cold, 42-6
  - hot, 42-6
- Worm, 33-8
- Worst-case stack up, 49-5
- Worth
  - future, 51-3
  - present, 51-3
- Wrap angle, 12-2
- X**
- XOFF, 47-4
- XON, 47-4
- X-ray, radiation, 35-10
- Y**
- Year-end convention, 51-2
- Yield
  - biomass, 36-222
  - bond, 52-3
  - coefficient, 33-11
  - factor, 33-11
  - financial, 51-5
  - point, 41-2
  - strength, 41-2
  - stress, 41-2
- Young's modulus, 18-1, 41-2
- Z**
- Zebra mussel, 33-8
- Zero
  - force member, 11-2
  - indicating bridge, 49-3
  - stability, 50-3
- Zeroth law of thermodynamics, 26-4
- Zone, critical, 24-4
- Zoonotic disease, 35-15
- z*-transform, 8-4