

## Glossary

**Tangent** In a right triangle  $ABC$  with right angle  $C$ ,

$$\tan A = \frac{\text{LENGTH OF OPPOSITE SIDE OF } A}{\text{LENGTH OF ADJACENT SIDE OF } A}$$

**Tangent line** A tangent line to a circle is a line that contains exactly one point of the circle. The tangent line to a curve at a point  $P$  is the limiting position, if this exists, of the secant line through a fixed point  $P$  on the curve and a variable point  $P'$  on the curve so that  $P'$  approaches  $P$  along the curve.

**Target population** The population to be considered for a statistical application.

**Target row** In an elementary row operation, it is the row that is changed. See *Elementary row operations*.

**Tautology** A compound statement is a tautology if all values on its truth table are true.

**Temperature** The degree of hotness or coldness.

**Ten** A representation for “ $\Delta\Delta\Delta\Delta\Delta\Delta\Delta\Delta\Delta\Delta$ ” objects

**Term** (1) A number, a variable, or a product of numbers and variables. See *Polynomial*. (2) A *term of a sequence* is one of the elements of that sequence.

**Terminating decimal** See *Decimal fraction*.

**Tessellation** A mosaic, repetitive pattern.

**Test point** A point that is chosen to find the appropriate half-plane when graphing a linear inequality in two variables.

**Theorem** A statement that has been proved. See *Deductive reasoning*.

**Theoretical probability** A probability obtained by logical reasoning according to stated definitions.

**Time** In a financial problem, the length of time (in years) from the present value to the future value.

**\*Row** An elementary row operation that multiplies each entry of a row of a matrix (called the *target row*) by some number, called a *scalar*. The elements of the row are replaced term-by-term by the products. It is denoted by \*Row.

**\*Row+** An elementary row operation that multiplies each entry of a row of a matrix (called the *pivot row*) by some number (called a *scalar*), and then adds that product, term-by-term, to the numbers in another row (called the *target row*). The results replace the entries in the target row, term-by-term. It is denoted by \*Row+.

**Ton** A measurement of mass in the United States system; it is equal to 2,000 lb.

**Topologically equivalent** Two geometric figures are said to be *topologically equivalent* if one figure can be elastically twisted, stretched, bent, shrunk, or straightened into the same shape as the other. One can cut the figure, provided at some point the cut edges are “glued” back together again to be exactly the same as before.

**Topology** That branch of geometry that deals with the *topological properties* of figures. If one figure can be transformed into another by stretching or contracting, then the figures are said to be *topologically equivalent*.

**Tournament method** A method of selecting a winner by pairing candidates head-to-head with the winner of one facing a new opponent for the next election.

**Trailing zeros** Sometimes zeros are placed after the decimal point or after the last digit to the right of the decimal point, and if these zeros do not change the value of the number, they are called *trailing zeros*.

**Transformation** A passage from one figure or expression to another, such as a reflection, translation, rotation, contraction, or dilation.

**Transformational geometry** The geometry that studies transformations.

**Transitive law** If A beats B, and B beats C, then A should beat C. In symbols, equality: If  $a = b$  and  $b = c$ , then  $a = c$ ; inequality: If  $a > b$  and  $b > c$ , then  $a > c$ . Also holds for  $\geq$ ,  $<$ , and  $\leq$ .

**Transitive reasoning** If  $a = b$  and  $b = c$ , then  $a = c$ .

**Translating symbols** The process of writing an English sentence in mathematical symbols.

**Transversal** A line that intersects two parallel lines.

**Transverse axis** The line passing through the foci is called the *transverse axis*.

**Trapezoid** A quadrilateral that has two parallel sides.

**Traveling salesperson problem (TSP)** A salesperson starts at home and wants to visit several cities without going through any city more than once and then returning to the starting city.

**Traversable network** A network is said to be *traversable* if it can be traced in one sweep without lifting the pencil from the paper and without tracing the same edge more than once. Vertices may be passed through more than once.

**Tree** A graph that is connected and has no circuits.

**Tree diagram** A device used to list all the possibilities for an experiment.

**Triangle** A polygon with three sides.

**Trichotomy** Exactly one of the following is true, for any real numbers  $a$  and  $b$ :  $a < b$ ,  $a > b$ , or  $a = b$ .

**Trigonometric functions** The same as the *trigonometric ratios*.

**Trigonometric ratios** The sine, cosine, and tangent ratios are known as the *trigonometric ratios*.

**Trillion** A name for  $10^{12} = 1,000,000,000,000$ .

**Trinomial** A polynomial with exactly three terms.

**Truth set** The set of values that makes a given statement true.

**Truth table** A table that shows the truth values of all possibilities for compound statements.

**Truth value** The truth value of a simple statement is true or false. The truth value of a compound statement is true or false and depends only on the truth values of its simple component parts. It is determined by using the rules for connecting those parts with well-defined operators.

**Two-point form** The equation of a line passing through  $(x_1, y_1)$  and  $(x_2, y_2)$  is

$$y - y_1 = \left( \frac{y_2 - y_1}{x_2 - x_1} \right) (x - x_1)$$

**Type I error**      Rejection of a hypothesis based on sampling when, in fact, the hypothesis is true.

**Type II error**      Acceptance of a hypothesis based on sampling when, in fact, it is false.