

# Excel Math Glossary

## First Grade through Sixth Grade

### Overview:

This glossary is intended to be helpful to students, teachers and parents using Excel Math. The glossary provides clear, short definitions of terms used throughout our K – 6 curriculum.

Each definition is followed by a listing in italics indicating the grade level and lesson number where the concept is first presented in each grade.

Illustrations in the right-hand column help to clarify definitions. The last page lists some frequently-used math, punctuation and currency symbols.

Before jumping into the specialized terms, here are some basic definitions:

**Mathematics, or Math** – the science or study of numbers, shapes and quantities. It also includes the symbols, relationships and rules used to organize and discuss them. The term *mathematics* comes from a Greek word meaning “something learned.” Three of the branches of mathematics studied in school are:

4	1	3	2
2	3	1	4
1	4	2	3
3	2	4	1

**Algebra** – a field of math analysis where letters and symbols are used to represent unknown or variable numbers. The term *algebra* comes from the Arabic name of a Persian mathematician who studied this subject and means “to reduce or reunite”.

$$A + B = C$$

**Arithmetic** – a basic branch of math that deals with the theory and computation of integers (whole numbers) and quantities. The term *arithmetic* comes from a Greek word that means “the art of counting or computing”.

$$123 + 456 = 579$$

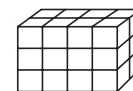
**Geometry** – a field of math study that deals with objects. The term *geometry* comes from a Greek word meaning “to measure the earth.”



*Plane Geometry* covers 2-dimensional points, lines, circles, polygons, etc.

*Solid Geometry* covers 3-dimensional spheres, cubes, pyramids, polyhedrons, etc.

*Spherical Geometry* covers shapes wrapped around the surface of a sphere.



$$2 \times 3 \times 4 = 24$$

cubic units

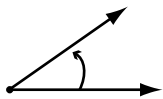
Four primary operations or actions that are learned as a foundation are:

**Adding** – joining two or more numbers, or quantities

**Subtracting** – taking one or more numbers, or quantities, away from another number

**Multiplying** – adding a number to itself multiple times

**Dividing** – grouping, or splitting, a number into multiple equal parts



## A

**Acute Angle** an angle that is less than  $90^\circ$ . [Lesson 4-78; Lesson 5-30; Lesson 6-25]

**Addend** any number being added. [Lesson 4-1]

**Adjacent Angles** angles that are next to each other. [Lesson 6-88]

**Adjoining Sides** sides that meet to form the angles of a figure. [Lesson 5-35; Lesson 6-14]

**Alternate Exterior Angles** outside angles that are on different parallel lines. [Lesson 6-88]

**Alternate Interior Angles** inside angles that are on different parallel lines. [Lesson 6-88]

**AM (ante meridiem)** the label for time from 12 midnight up to, but not including, 12 noon. [Lesson 3-112; Lesson 4-57; Lesson 5-57; Lesson 6-13]

**Angle** two rays or line segments that intersect or have the same endpoint. [Lesson 4-70; Lesson 5-30; Lesson 6-25]

**Angle Bisector** a line or line segment that divides an angle into two congruent angles. [Lesson 6-88]

**Arabic Numerals** the digits used in our base ten (decimal) number system used to indicate place value. [Lesson 4-126; Lesson 5-108; Lesson 6-54]

**Arc** a continuous section of a circle's circumference. [Lesson 5-75; Lesson 6-60]

**Area** the size of an enclosed surface. Area is measured in square units. [Lesson 2-90; Lesson 4-68; Lesson 5-56; Lesson 6-30]

**Area of a Parallelogram**  $\text{area} = \text{base} \times \text{height}$ . Area of a parallelogram is measured in square units. [Lesson 5-134; Lesson 6-121]

**Area of a Rectangle**  $\text{area} = \text{length} \times \text{width}$ . Area of a rectangle is measured in square units. [Lesson 5-56; Lesson 6-30]

**Area of a Triangle**  $\frac{1}{2} \times (\text{base} \times \text{height})$ . Area of a triangle is measured in square units. [Lesson 5-144; Lesson 6-124]

$(2 + 3) + 4 = 2 + (3 + 4)$  **Associative Property of Addition** the sum stays the same when the grouping of addends is changed. [Lesson 4-108; Lesson 5-96; Lesson 6-37]

$(2 \times 3) \times 4 = 2 \times (3 \times 4)$  **Associative Property of Multiplication** the product stays the same when the grouping of factors is changed. [Lesson 4-108; Lesson 5-96; Lesson 6-37]

**Average** a single number that describes a set of values. Normally it is the mean, but it can also be the median or the mode. [Lesson 4-122; Lesson 5-102; Lesson 6-55]

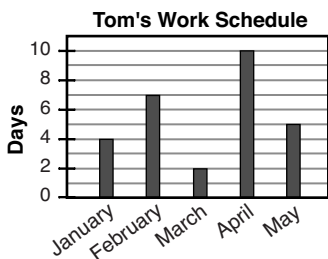
## B

**Bar graph** a graph in which the length of solid bars is used to represent numbers and compare data, such as quantities. [Lesson 2-50; Lesson 5-5; Lesson 6-2]

**Base (Geometry)** a polygon's side or solid figure's face by which the figure is measured or named. [Lesson 4-40; Lesson 5-20; 6-15]

**Base (Pre Algebra)** in a number given in exponential form, the number that is raised to a given exponent. [Lesson 5-138; Lesson 6-77]

Arabic Numerals  
1 2 3 4 5 6 7 8 9 10  
50 100 500 1,000



**Bilateral Symmetry** a characteristic of a figure that, if folded along a line of symmetry, would create two halves that are mirror images of each other. [Lesson 6-23]

## C

**Cardinal Number** a whole number used to count items, one, two, etc. [Lesson 4-1]

**Celsius (C)** the metric-system scale for measuring temperature by which there are 100 degrees between the freezing and boiling points of water. Named after Swedish astronomer Anders Celsius (1701-1744) [Lesson 2-53; Lesson 3-32; Lesson 4-30; Lesson 5-12; Lesson 6-10]

**Center** the point in a circle that is an equal distance from any point on the circumference of the circle. [Lesson 3-119; Lesson 5-75; Lesson 6-60]

**Centigrade** describes a temperature scale with 100 degrees between the freezing and boiling points of water (Celsius is preferred over Centigrade). [Lesson 2-53; Lesson 3-32; Lesson 4-30]

**Centimeter (cm)** a metric length measurement; 1 cm equals about .3937 inches. [Lesson 4-29]

**Cent** a unit of money equal to 1/100 of a dollar. [Lesson 2-109]

**Central Angle** an angle formed at the center of a circle. [Lesson 4-132; Lesson 5-75; Lesson 6-60]

**Central Tendency** the numerical average, or "center", of a set of values. Mean, median and mode are all measures of central tendency. [Lesson 6-70]

**Certain Event** an event that will definitely happen. A certain event has a probability of 1. [Lesson 5-60; Lesson 6-34]

**Change Equivalents** multiple ways of expressing the same money value or amount. For example, two quarters are equivalent to one half-dollar coin. [Lesson 2-83]

**Chord** a line segment connecting two points on a circle's circumference. [Lesson 5-75; Lesson 6-60]

**Circle** a closed curve having the same distance between the points on its circumference and a fixed point (the center). [Lesson 1-8; Lesson 5-75; Lesson 6-60]

**Circle Graph** a graph in which collected data is displayed using different sized sections of a circle to help show how individual parts compare to each other. See **Pie Graph**. [Lesson 2-35; Lesson 5-5]

**Circular Base** a special side of a cone or cylinder that forms a closed curve. In a cylinder, there are two circular bases that are parallel and congruent. [Lesson 5-20; Lesson 6-15]

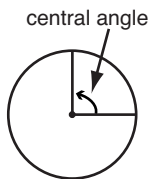
**Circumference**  $Circumference = 2\pi r$  or  $\pi d$ . The perimeter of a circle. [Lesson 3-119; Lesson 4-71; Lesson 5-75; Lesson 6-60]

**Closed Figure** a figure that begins and ends at the same point. [Lesson 5-42; Lesson 6-21]

**Combination** a possible set of events or items. [Lesson 6-150]

**Commutative Property of Addition** the sum remains the same when the order of the addends changes. [Lesson 4-72; Lesson 5-32; Lesson 6-37]

$$2 + 3 + 4 = 4 + 2 + 3$$

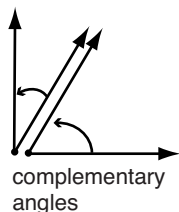


$$2 \times 3 \times 4 = 4 \times 2 \times 3$$

**Commutative Property of Multiplication** the product remains the same when the order of the factors changes. [Lesson 4-72; Lesson 5-32; Lesson 6-37]

**Comparative** a process of comparison by estimating relative values. [Lesson 2-81]

**Comparison Symbols**  $<$ ,  $>$  and  $=$  are used to compare two numbers. The first two symbols point to the smaller of the two numbers. The “=” sign indicates two equal numbers. [Lesson 3-4]

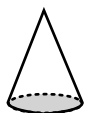


**Complementary Angles** two angles whose sum is  $90^\circ$ . [Lesson 6-80]

**Composite Number** a number with more than two factors. [Lesson 4-94; Lesson 5-62; Lesson 6-50]

**Compound Event** an event that consists of two or more simple events (events with single outcomes). [Lesson 6-150]

**Concave Polygon** a polygon with four or more sides having at least one internal angle greater than  $180^\circ$ . [Create a Problem 6-3]

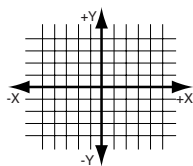


**Cone** a three-dimensional geometric figure with one vertex, one curved edge, one circular base and one curved surface. [Lesson 4-40; Lesson 5-20; Lesson 6-15]



**Congruent Figures** figures with identical angles and sides of equal lengths. They are the same shape and size. [Lesson 2-144; Lesson 3-120; Lesson 4-60; Lesson 5-30; Lesson 6-23]

**Convex Polygon** a polygon that does not have any internal angles greater than  $180^\circ$ . [Create a Problem 6-3]

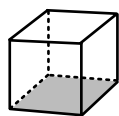


**Coordinate Grid** a grid on which multiple points are located by their horizontal and vertical distance from the origin. [Lesson 4-65; Lesson 5-52; Lesson 6-32]

**Coordinate Points** a pair of numbers used to reference a point on a coordinate grid.  $(2, -3)$  [Lesson 4-65; Lesson 5-52; Lesson 6-32]

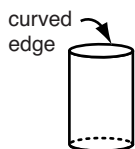
**Corresponding Angles** two angles that share the same position with respect to the line that intersects two parallel lines. [Lesson 6-88]

**Cost Per Unit** the money amount needed to pay for one item. [Lesson 5-97; Lesson 6-72]



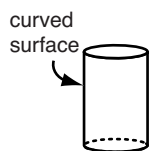
**Cube** a three-dimensional figure with 8 vertices, 12 congruent straight edges and 6 congruent square flat faces. [Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Cup** a standard volume measurement equal to 8 fluid ounces. [Lesson 4-29]



**Curved Edge** the curved line segment that forms where a curved surface meets a circular base. [Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Curved Surface** the curved region on a three-dimensional figure. [Lesson 4-40; Lesson 5-20; Lesson 6-15]



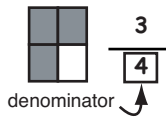
**Cylinder** a three-dimensional figure with 2 curved edges, 2 circular bases and one curved surface. [Lesson 4-40; Lesson 5-20; Lesson 6-15]

## D

**Decimal** 1) the symbol used to separate whole numbers (dollar amounts) from parts of the whole (cents); 2) a word that refers to 10; or 3) our math system that is based on 10 different digits. [Lesson 2-109; Lesson 4-11; Lesson 5-3; Lesson 6-35]

**Decimal Number** a number with a decimal point. [Lesson 4-85; Lesson 5-65; Lesson 6-35]

**Deductive Reasoning** a logical process that begins with evidence and draws a conclusion. Used in problem solving, as in word problems. [Lesson 2-130; Lesson 4-4; Lesson 5-10; Lesson 6-7]



**Denominator** the portion of a fraction written below the line. It refers to the total number of parts in a group or the total number of parts into which a whole is divided.

[Lesson 1-113; Lesson 2-80; Lesson 3-66; Lesson 4-15; Lesson 5-15; Lesson 6-5]

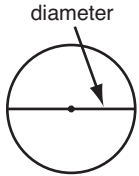
**Density** a measure of the amount of molecules (groups of atom) in an object or volume.

[Activity 6-13]

**Dependent Variable** a variable in a mathematical expression whose value depends on the independent variable. [Lesson 6-70]

**Diagonal** a line segment connecting two nonadjointing vertices of a polygon. A diagonal must be completely inside the figure. [Lesson 4-39; Lesson 5-35; Lesson 6-14]

**Diameter** a line segment that passes through the center of a circle and connects to either side of the circle. [Lesson 3-119; Lesson 4-71; Lesson 5-75; Lesson 6-60]



**Distributive Property of Multiplication** a sum being multiplied by another number will have the same result if the addends are multiplied and then totaled.

[Lesson 4-108; Lesson 5-96; Lesson 6-37]

**Dividend** a quantity to be divided by a divisor. [Lesson 4-24; Lesson 5-11; Lesson 6-6]

**Divisor** the quantity by which the dividend is divided. [Lesson 4-24; Lesson 5-11; Lesson 6-6]

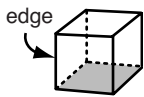
**Dollar Equivalents** multiple ways of expressing the same dollar value or amount. For example, four quarters are equivalent to one dollar. [Lesson 2-149]

**Dollar Symbol (\$)** the symbol that represents U.S. dollars. One dollar is equal to one hundred cents. [Lesson 2-109; Lesson 4-11]

**Dozen** when counting, 12 items. [Lesson 3-74]

## E

**Edge** the line segment where two faces on a three-dimensional figure meet. It may be flat or curved. [Lesson 4-40; Lesson 5-20; Lesson 6-15]



**Empty Set** a set containing no items. See **Null Set**. [Lesson 4-44; Lesson 5-53; Lesson 6-45]

**Equal** describes two quantities having identical values. [Lesson 2-12]

**Equally Likely** having the same chance or probability. [Lesson 5-60; Lesson 6-34]

**Equation** a number statement that includes an equal symbol (=).

[Lesson 2-112; Lesson 3-21; Lesson 4-14; Lesson 5-14; Lesson 6-1]

**Equilateral Triangle** a triangle having three sides of equal length.

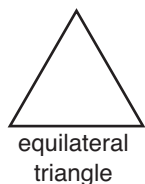
[Lesson 4-98; Lesson 5-30; Lesson 6-25]

**Equivalent Fractions** fractions that have the same value but are expressed with different numbers. For example, 4/8 is equivalent to 2/4 and 1/2.

[Lesson 2-155; Lesson 4-75; Lesson 5-31; Lesson 6-18]

**Equivalent Ratios** ratios of equal value written in the form of equivalent fractions.

[Lesson 6-66]



**Estimate** to calculate a number close to the exact answer. [Lesson 4-45; Lesson 5-25; Lesson 6-20]

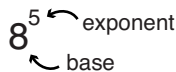
**Even Number** a whole number that can be divided into two equal groups. Even numbers end in 0, 2, 4, 6, or 8. [Lesson 2-99; Lesson 3-31; Lesson 4-17; Lesson 5-9; Lesson 6-19]

**Exponent** in a number given in exponential form, the number that indicates how many times the base is used as a factor. [Lesson 5-138; Lesson 6-77]

**Exponential Form** a way of writing a number using exponents when the same factor is used more than once. [Lesson 5-138; Lesson 6-77]

**Exterior Angle** an angle on the outside of two parallel lines that are intersected by another line. [Lesson 6-88]

**Extraneous** a term describing information that is part of a word problem but is not essential to finding the solution. [Lesson 2-57]



## F

**Face** a plane figure that is one side of a three-dimensional figure. See **Flat Face**.

[Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Fact Family** the related addition and subtraction or multiplication and division facts involving the same three numbers. [Lesson 2-20; Lesson 4-13; Lesson 5-1; Lesson 6-1]

$$\begin{array}{r} 2 \\ +1 \\ \hline 3 \end{array} \quad \begin{array}{r} 1 \\ +2 \\ \hline 3 \end{array} \quad \begin{array}{r} 3 \\ -1 \\ \hline 2 \end{array} \quad \begin{array}{r} 3 \\ -2 \\ \hline 1 \end{array}$$

**Factor** a number that divides evenly into another number. [Lesson 4-93; Lesson 5-11; Lesson 6-6]

**Factorial** the product of a whole number and every positive number less than the number. [Lesson 6-150]

**Fahrenheit (F)** a temperature scale in which the freezing point of water is 32° and the boiling point is 212°. Daniel Gabriel Fahrenheit (1686-1736) invented the Fahrenheit scale and the mercury thermometer. [Lesson 2-53; Lesson 3-32; Lesson 4-30; Lesson 5-12; Lesson 6-10]

**Flat Face** a two-dimensional polygon that forms one of the sides of a three-dimensional figure, or solid figure. [Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Flip** the change in location of a figure over a line that results in a mirror image. See **Reflection**. [Lesson 2-135; Lesson 3-120; Lesson 4-60, Lesson 5-45; Lesson 6-23]

**Foot (ft)** a standard length measurement. [Lesson 4-29]

**Formula** a mathematical statement or rule used in calculations. [Lesson 4-68, Lesson 5-54; Lesson 6-30]

**Fraction** describes the relationship of one portion of a group to a whole that has been divided into equal parts. [Lesson 1-113; Lesson 2-63; Lesson 3-54; Lesson 4-15]

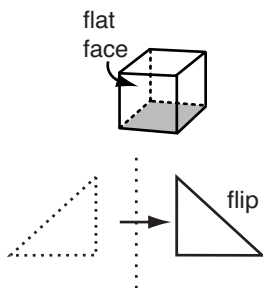
**Fractional Part** a portion of a whole. [Lesson 2-63; Lesson 4-15]

## G

**Gallon (gal)** a standard volume measurement equal to 128 fluid ounces. [Lesson 4-29]

**Gram (g)** a metric weight measurement. 454 grams = 1 pound. [Lesson 4-29]

**Greater Than** describes a number of higher, or larger, value than another number. The symbol for this concept is ">". [Lesson 2-12; Lesson 4-8; Lesson 5-6; Lesson 6-2]



**Greatest Common Factor** the largest factor of two or more numbers.

[Lesson 4-106; Lesson 5-88; Lesson 6-56]

**Greatest to Least** the arrangement of numbers from highest value to lowest value.

[Lesson 5-6; Lesson 6-2]

**Greatest Value** the largest value in a series of numbers. [Lesson 2-3]

## H

**Half Dollar** a coin with the value of fifty cents, or pennies. [Lesson 2-119]

**Half Past** thirty minutes after the hour, at which point the minute hand is pointing to the 6 on an analog clock. [Lesson 2-29]

**Height** the vertical dimension of a two- or three-dimensional figure. [Lesson 5-56]

**Hexagon** a polygon with exactly six sides. [Lesson 3-106; Lesson 4-58; Lesson 5-42; Lesson 6-21]

**Histogram** a graph in which the labels for the bars are numerical intervals. Used to compare data. [Lesson 5-40; Lesson 6-2]

## I

**Impossible Event** an event with a probability of zero. [Lesson 5-60; Lesson 6-34]

**Improper Fraction** a fraction in which the numerator is greater than or equal to the denominator. [Lesson 4-88; Lesson 5-68; Lesson 6-27]

**In Order** a sequence in which a set of objects or numbers is placed. Usually means from smallest to largest, or least to greatest. [Lesson 2-40]

**Inch (in)** a standard length measurement. [Lesson 4-29]

**Independent Variable** a variable in a mathematical expression whose value determines the dependent variable. [Lesson 6-70]

**Inequality** a number statement that compares two unequal expressions.

[Lesson 4-35; Lesson 5-19; Lesson 6-3]

**Integer** any positive or negative whole number. (-2, -1, 0, 1, 2) [Lesson 5-150; Lesson 6-130]

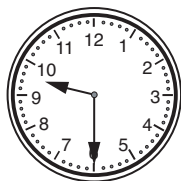
**Intercept** the point where a line or curve meets the x- or y-axis. [Lesson 6-115]

**Interest** 1) the fee charged by a lender to a borrower for use of borrowed money; 2) the amount a bank pays to depositors having accounts. Interest is usually a percentage of the amount borrowed from a lender or deposited into a bank account. [Lesson 6-110]

**Interior Angle** an angle on the inside of two parallel lines that are intersected by another line. [Lesson 6-88]

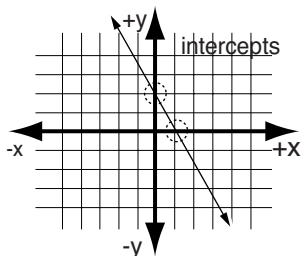
**Interquartile Range** a measure of spread that is determined by arranging data in descending order and determining the difference between Q3 (the value halfway between the maximum and the median) and Q1 (the value halfway between the minimum and the median). [Activity 6-10]

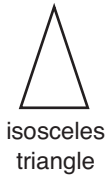
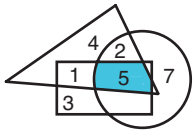
**Intersecting Lines** lines that cross at some point. [Lesson 4-38; Lesson 5-35; Lesson 6-14]



$\frac{8}{3}$  ← improper fraction

$$(23 + 2) \neq (8 \times 4)$$





**Intersection of Sets** the set of values or items that are within all the sets being evaluated.

[Lesson 4-44; Lesson 5-53; Lesson 6-45]

**Isosceles Triangle** a triangle having only 2 sides of equal length.

[Lesson 4-98; Lesson 5-30; Lesson 6-25]

## J K

**Kilogram (kg)** a metric weight measurement; 1 kg = 2.2 pounds. [Lesson 4-29]

**Kilometer (km)** a metric length measurement; 1 km = .62 miles. [Lesson 4-29]

## L

**Leap year** a year in the Gregorian calendar in which February has 29 days, resulting in a 366-day year. [Lesson 4-124; Lesson 5-51; Lesson 6-41]

**Least Common Factor** the smallest factor of two or more numbers. [Lesson 6-56]

**Least to Greatest** the arrangement of numbers from lowest value to highest value. [Lesson 5-6; Lesson 6-2]

**Least Value** the number that has the lowest quantity or value compared to the other numbers in the set. [Lesson 2-3]

**Length** the distance along a figure from one point to another.

[Lesson 2-55; Lesson 3-116; Lesson 4-29; Lesson 5-56; Lesson 6-15]

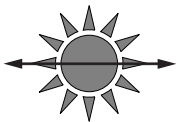
**Less Than** describes a number of smaller, or lesser, value than another number. The symbol for this concept is "<". [Lesson 2-12; Lesson 4-8; Lesson 5-6; Lesson 6-2]

**Likely Event** an event with a probability of greater than one half. [Lesson 6-34]

**Line** a two-dimensional straight path that extends in both directions without endpoints.

[Lesson 3-56; Lesson 4-37; Lesson 5-17; Lesson 6-11]

**Line Graph** a diagram upon which plotted points from a set of data form a line that shows change over time. [Lesson 5-5; Lesson 6-2]



**Line of Symmetry** an imaginary line that divides a figure so each half is a mirror image of the other. [Lesson 2-75; Lesson 3-55; Lesson 4-30; Lesson 5-45; Lesson 6-23]

**Line Segment** a portion of a line that has two endpoints and a definite length.

[Lesson 3-56; Lesson 4-37; Lesson 5-17; Lesson 6-11]

**Liter (l)** a metric volume measurement; 1 liter = .2642 gallons. [Lesson 4-29]

**Lowest Common Multiple** the multiple of two or more numbers having the least value. [Lesson 4-91; Lesson 5-38; Lesson 6-17]

## M

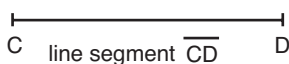
**Mean** a description of a set of values that is calculated by adding the values and dividing that sum by the number of items in the set. See **Average**. [Lesson 4-150; Lesson 5-115; Lesson 6-65]

**Mean or Average**

(2, 3, 4, 5, 6)

$$(2 + 3 + 4 + 5 + 6) = 20$$

$$20 \text{ divided by } 5 = 4$$

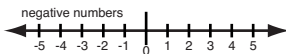
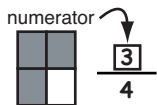
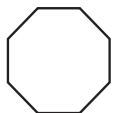




**Median**(1, 2, 3, 4, 5, 6)

$3 + 4 = 7$

7 divided by 2 = 3.5

**Median** a description of a set of values that is obtained by putting the values in order from least to greatest and selecting the middle value for an odd number of items or by calculating the mean of the two middle values for an even number of items.*[Lesson 4-150; Lesson 5-115; Lesson 6-65]***Meter (m)** a metric length measurement ; 1 meter = 1.0936 yards. *[Lesson 4-29]***Mile (mi)** a standard length/distance measurement; 5280 feet. *[Lesson 4-29]***Milliliter (ml)** a metric volume measurement; 1/1000th of a liter. *[Lesson 4-29]***Mixed Number** a number consisting of a whole number and a fraction.*[Lesson 4-81; Lesson 5-23; Lesson 6-5]***Mode** a description of a set of values that is obtained by selecting the value within the set that occurs most frequently. A set of values may have more than one mode.*[Lesson 4-150; Lesson 5-115; Lesson 6-65]***More than** a number of greater quantity or value than another number. *[Lesson 2-57]***Most** the number that has the greatest quantity or value compared to other numbers in a set.*[Lesson 2-3]***Multiple** the product of two whole numbers. *[Lesson 3-117; Lesson 4- 51; Lesson 5-28; Lesson 6-1]***Multiplicand** the factor being multiplied in a multiplication problem.*[Lesson 4-24; Lesson 5-11; Lesson 6-6]***Multiplication Fact** a problem in which a multiplicand is multiplied by a multiplier to form a product. *[Lesson 5-2]***Multiplier** the factor being multiplied by in a multiplication problem.*[Lesson 4-24; Lesson 5-11; Lesson 6-6]***N****Negative Number** a number less than zero. See **Positive Number**.*[Lesson 4-133; Lesson 5-89; Lesson 6-63]***Not equal** describes two quantities of different value. The symbol for this concept is "≠".*[Lesson 2-112]***Null Set** a set containing no items. See **Empty Set**. *[Lesson 4-44; Lesson 5-53; Lesson 6-45]***Number Line** a line marked with numbers that is used to compare values and aid in math calculations. *[Lesson 1-83; Lesson 2-4; Lesson 3-7; Lesson 4-45]***Numerator** the portion of a fraction written above the line. It represents a part of the whole.*[Lesson 1-113; Lesson 2-80; Lesson 3-66; Lesson 4-15; Lesson 5-15; Lesson 6-5]***O****Obtuse Angle** an angle that measures more than 90° and less than 180°.*[Lesson 4-78; Lesson 5-30; Lesson 6-25]***Octagon** a polygon with exactly eight sides. *[Lesson 3-106; Lesson 4-58; Lesson 5-42; Lesson 6-21]*



**Odd Number** a number that cannot be divided into two equal groups. Odd numbers end with 1, 3, 5, 7, or 9. [Lesson 2-99; Lesson 3-31; Lesson 4-17; Lesson 5-9; Lesson 6-19]

**Open Figure** a figure that begins and ends at two different points. [Lesson 5-23; Lesson 6-21]

**Order of Operations** the rules describing the sequence of mathematical operations to use when adding, subtracting, multiplying or dividing. [Lesson 2-102; Lesson 4-34; Lesson 5-18; Lesson 6-3]

**Order of Symmetry** the number of different positions to which a figure can be rotated to match itself exactly. [Lesson 5-45; Lesson 6-23]

**Ordered Pair** a pair of numbers used to locate a point on a coordinate grid. The horizontal (x-coordinate) is given first and the vertical (y-coordinate) is last. For example, (7, 2). [Lesson 4-65; Lesson 5-52; Lesson 6-32]

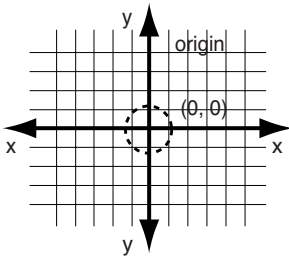
**Ordinal Number** a whole number that indicates position in a sequence: first, second, third etc. [Lesson 2-7; Lesson 3-3; Lesson 4-46; Lesson 5-13; Lesson 6-1]

**Origin** the intersection of the x- and y-axes on a coordinate grid. Its designation is (0, 0). [Lesson 4-65; Lesson 5-52; Lesson 6-32]

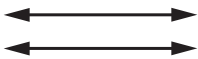
**Ounce (oz)** a standard weight measurement; 16 ounces equals a pound. Also a standard fluid measurement; 8 ounces equals a cup. [Lesson 4-29]

**Outlier** an extreme deviation from the mean. [Lesson 6-70]

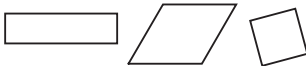
**ordinal numbers**  
1st 2nd 3rd 4th 5th  
6th 7th 8th 9th 10th



## P



**Parallel Lines** lines that never cross, no matter how far they extend. They are always the same distance apart. [Lesson 4-38; Lesson 5-35; Lesson 6-14]



**Parallelogram** a quadrilateral in which opposite sides are parallel and congruent. Squares and rectangles are parallelograms. [Lesson 3-106; Lesson 4-39; Lesson 5-35; Lesson 6-14]

**Parentheses** symbols used to group numbers together within a number statement. Operations within parentheses must be performed first. [Lesson 2-102; Lesson 4-34]

**Pattern** a regularly repeated arrangement of letters, numbers, shapes, lines, colors, etc. [Lesson 1-24; Lesson 2-101; Lesson 4-58; Lesson 5-42; Lesson 6-21]

**Pentagon** a polygon with exactly five sides. [Lesson 3-106; Lesson 4-58; Lesson 5-42; Lesson 6-21]

**Percent** a ratio that compares a number to 100 using the % symbol. [Lesson 4-127; Lesson 5-83; Lesson 6-44]

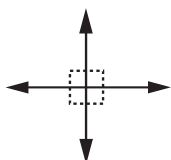
**Percent Pie Graph** a pie (circle) graph in which the sum of the percentages in each section of the graph equals 100%. [Lesson 6-94]

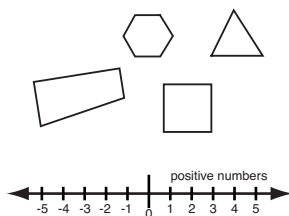
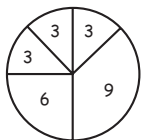
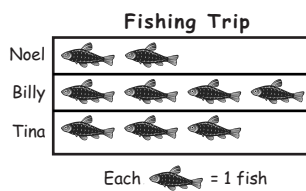
**Perimeter** the distance around a closed figure. [Lesson 2-132; Lesson 4-64; Lesson 5-54; Lesson 6-30]

**Permutation** a possible order for a series of events or items. [Lesson 6-150]

**Perpendicular Lines** lines that intersect to form "square corners", or right angles (90°) where they cross. [Lesson 4-38; Lesson 5-35; Lesson 6-14]

**Pi ( $\pi$ )** the ratio of the circumference of a circle to its diameter. Pi is approximately equal to 3.14, or  $22/7$ . [Lesson 5-145; Lesson 6-125]





**Picture Graph** a graph in which pictures or symbols are used to represent collected data.

[Lesson 2-15; Lesson 5-5]

**Pie graph** a graph in which collected data is displayed using different sized sections of a circle to help show how the individual parts compare to each other. See **Circle Graph**.

[Lesson 2-35; Lesson 5-5]

**Pint (pt)** a standard volume measurement: 16 ounces. [Lesson 4-29]

**Place value** describes a system in which a digit's value is determined by its position within a number. [Lesson 2-123]

**Plane Figure** any two-dimensional figure formed by straight or curved lines.

[Lesson 2-90; Lesson 4-39; Lesson 5-20; Lesson 6-14]

**PM (post meridiem)** the label for time from 12 noon up to, but not including, 12 midnight. [Lesson 3-112; Lesson 4-57; Lesson 5-57; Lesson 6-13]

**Polygon** a plane figure made up of 3 or more straight lines.

[Lesson 3-106; Lesson 4-39; Lesson 5-20; Lesson 6-14]

**Positive Number** a number greater than zero. See **Negative Number**.

[Lesson 4-133; Lesson 5-89; Lesson 6-63]

**Possible Outcome** a potential result of an event. [Lesson 2-100]

**Pound (lb)** a standard weight measurement. [Lesson 4-29]

**Prime Factor** a factor that is also a prime number. [Lesson 4-94; Lesson 5-62; Lesson 6-50]

**Prime Number** a number that has itself and one as its only factors.

[Lesson 4-94; Lesson 5-62; Lesson 6-50]

**Probability** the likelihood that a future event will occur.

[Lesson 2-25; Lesson 4-5; Lesson 5-60; Lesson 6-34]

**Product** the number obtained by multiplying two or more numbers together.

[Lesson 4-24; Lesson 5-11; Lesson 6-6]

**Profit** the amount of money a business earns after all expenses are paid. [Lesson 6-110]

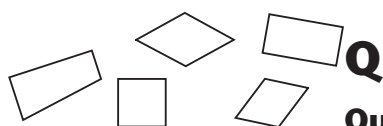
**Property of One** any number multiplied by one will have itself as the product.

[Lesson 5-96; Lesson 6-38]

**Proportion** an equation that shows two ratios are equal. [Lesson 6-30]

**Put-In-Order Problem** a problem that requires sorting objects into a sequence or pattern. [Lesson 2-142; Lesson 4-8]

**Pythagorean Theorem** For any right triangle, the area of a square constructed along the triangle's longest side (the hypotenuse) is equal to the sum of the area of squares built along the other two sides. [Activity 6-30]



**Q**

**Quadrilateral** a polygon with 4 sides. [Lesson 3-106; Lesson 4-39; Lesson 5-35; Lesson 6-14]

**Quart (qt)** a standard volume measurement. [Lesson 4-29]

**Quarter past** fifteen minutes (a quarter of an hour) after the hour, at which time the minute hand is at the 3 on an analog clock. [Lesson 2-45; Lesson 5-8]





**Quarter to** fifteen minutes (a quarter of an hour) before the hour, at which time the minute hand is at the 9 on an analog clock. [Lesson 2-45; Lesson 5-8]

**Quotient** the number obtained by dividing one number by another. [Lesson 4-24; Lesson 5-11; Lesson 6-6]

## R

radius

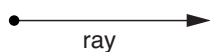


**Radius** a line segment from the center of a circle to any point on the circle. [Lesson 3-119; Lesson 4-71; Lesson 5-75; Lesson 6-60]

**Range** (of a set of data) the numerical difference between the largest and smallest values in a set of data. [Activity 6-10]

**Rate** a ratio that compares measurements or amounts; One measured quantity is related to or judged by another quantity. [Lesson 6-89]

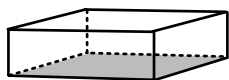
**Ratio** a comparison of two numbers or measures using division. [Lesson 4-56; Lesson 5-55; Lesson 6-40]



**Ray** a part of a line that has only one endpoint and extends indefinitely in only one direction. [Lesson 4-70; Lesson 5-30; Lesson 6-25]

**Reasoning** a mental process by which one draws conclusions from certain information. [Lesson 5-10]

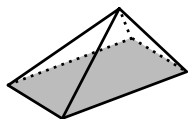
$(1/2 \times 2) = (1/2 \times 2/1) = 2/2 = 1$  **Reciprocals** two numbers whose product is one. [Lesson 5-118; Lesson 6-101]



rectangular prism

**Rectangle** a parallelogram with perpendicular adjoining sides. [Lesson 6-14]

**Rectangular Prism** a three-dimensional figure with 8 vertices, 12 straight edges and 6 rectangular flat faces. [Lesson 4-40; Lesson 5-20; Lesson 6-15]



rectangular pyramid

**Rectangular Pyramid** a three-dimensional figure with 5 vertices, 8 straight edges, 4 triangular flat faces and 1 rectangular base. [Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Reflection** the change in location of a figure across a straight line that results in a mirror image. See **Flip**. [Lesson 4-60; Lesson 5-45; Lesson 6-23]

**Regroup** to exchange amounts of equal value but with a different number of units. For example, ten ones can be regrouped to one ten. [Lesson 2-22]

**Regular Hexagon** a hexagon with all sides the same length and all angles the same measure. [Lesson 3-106; Lesson 5-42; Lesson 6-21]

**Regular Octagon** an octagon with all sides the same length and all angles the same measure. [Lesson 3-106; Lesson 5-42; Lesson 6-21]

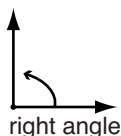
**Regular Pentagon** a pentagon with all sides the same length and all angles the same measure. [Lesson 3-106; Lesson 5-42; Lesson 6-21]

How many groups of 2 are there in 5?



2 remainder 1

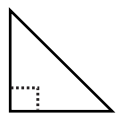
**Remainder** the number left over when one number is divided by another. [Lesson 3-93; Lesson 4-33; Lesson 5-11; Lesson 6-6]



right angle

**Rhombus** a parallelogram with 4 equal sides. [Lesson 4-144; Lesson 5-71; Lesson 6-14]

**Right Angle** an angle that measures exactly  $90^\circ$ . [Lesson 4-78; Lesson 5-30; Lesson 6-25]



right triangle

**Right Triangle** a triangle with one right angle. [Lesson 6-25]

## Roman Numerals

I II III IV V  
VI VII VIII IX X  
L(50) C(100) D(500) M(1000)

**Roman Numerals** a numerical symbol system created by the ancient Romans. It uses what we consider letters and is not based on place value. [Lesson 4-126; Lesson 5-108; Lesson 6-54]

**Rotation** the movement of a figure around a point. See **Turn**.

[Lesson 4-60; Lesson 5-45; Lesson 6-23]

**Rotational Symmetry** a figure has rotational symmetry if it can be rotated to one or more positions before turning  $360^\circ$  around its central point and still look identical to the original figure. [Lesson 5-45; Lesson 6-23]

**Rounding** a process by which digits are changed in a specified place using certain rules. Used for estimating or testing the reasonableness of a mathematical computation.

[Lesson 4-45; Lesson 5-25; Lesson 6-20]

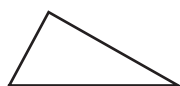
## S

**Sale Price** the price of an item after a discount (usually in percent) is deducted from the item's original price. [Lesson 6-110]

**Sales Tax** a percentage of an item's price that is paid to local or state government when the item is purchased. [Lesson 6-110]

**Sample** a group of items selected from a population and used to test hypotheses about the population. [Lesson 6-70]

**Scale** 1) to make a copy of an object that is larger or smaller than the original by a percentage or ratio; 2) a way of representing a large distance in a proportional, but smaller, drawing. A typical map scale represents 1 mile with 1 inch. [Lesson 5-114; Lesson 6-29]



scalene triangle

**Scalene Triangle** a triangle that has three sides with different lengths.

[Lesson 4-98; Lesson 5-30; Lesson 6-25]

**Scatter Plot** a graph of data points, usually from an experiment, that is used to illustrate the relationship between two variables. [Lesson 6-70]

**Series of Events** a sequence in which certain events start and finish in a certain order.

[Lesson 2-40]

**Short Division** a method for performing division without showing long subtraction columns. [Lesson 5-101; Lesson 6-82]



**Similar Figures** two figures that have the same proportions but are not the same size.

[Lesson 2-144; Lesson 3-120; Lesson 4-60; Lesson 5-45; Lesson 6-23]

**Simple Event** an event that contains a single outcome. [Lesson 6-150]

**Slide** the movement of a geometric figure without changing its appearance. See **Translation**.

[Lesson 2-135; Lesson 3-120; Lesson 4-60; Lesson 5-45; Lesson 6-23]

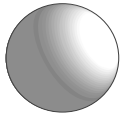
**Slope** the slant of a line from left to right. A line that slants upward from left to right has a positive slope. A line that slants downward from left to right has a negative slope. The slope of a line is found by dividing the change in y-value by the change in x-value. [Lesson 6-115]

**Solid Figure** an object that has length, width and height. See **Three-Dimensional Figure**.

[Lesson 2-110; Lesson 3-99; Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Speed** the distance traveled during a period of time. **Speed = distance ÷ time** [Lesson 6-89]

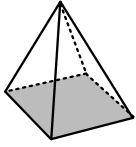




**Sphere** a three-dimensional figure made up of points on the surface that are all an equal distance from the center. [Lesson 4-40; Lesson 5-11; Lesson 6-15]

**Square** a parallelogram with 4 congruent sides and 4 congruent angles.

[Lesson 1-8; Lesson 4-15; Lesson 5-20; Lesson 6-14]



**Square Pyramid** a three-dimensional figure with 5 vertices, 8 straight edges, 4 triangular flat faces and 1 square base. [Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Square Root** a number that, when multiplied by itself, equals a squared number.

[Lesson 6-77]

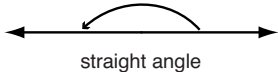
**Square Unit** a square with a side measuring one unit of length that can be laid on top of an object to measure its area. [Lesson 2-90; Lesson 4-68]

**Squared Number** a number that is multiplied once by itself. [Lesson 5-145; Lesson 6-125]

**Statement** another term used for “number sentence”. [Lesson 3-99]

**Statistics** describes the analysis of the frequency of past events. [Lesson 6-70]

**Stem and Leaf Plot** organizes the numbers in data so the numbers themselves make the display. Often used when there is a wide range of data. [Lesson 5-115; Lesson 6-65]



**Straight Angle** an angle that measures  $180^\circ$ . [Lesson 6-80]

**Straight Edge** the line segment formed where flat faces meet.

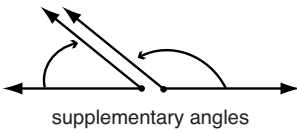
[Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Sufficient** having enough information to answer a question. [Lesson 2-30]

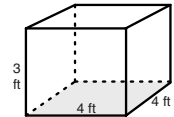
**Supplementary Angles** two angles whose sum equals  $180^\circ$ . [Lesson 6-80]

**Surface area** the total area of the faces and curved surfaces of a three-dimensional figure.

[Lesson 4-149; Lesson 5-137; Lesson 6-100]



supplementary angles



Surface area equals the sum of the areas of the flat faces.

## T

**Tally Chart** a graphical way to display a counting process or quantity by making marks in rows on a chart. [Lesson 2-5]

**Tessellation** a collection of shapes (tiles) that fit together without gaps or overlaps.

[Activity 6-8]

**Three-Dimensional Figure** a figure with length, width and height. See **Solid Figure**.

[Lesson 2-110; Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Ton** a standard weight measurement that equals 2000 pounds. [Lesson 4-29]

**Transformation** the movement of a plane figure from one position to another.

[Lesson 2-135; Lesson 3-120; Lesson 5-45; Lesson 6-23]

**Translation** the movement of a geometric figure without changing its appearance. See **Slide**.

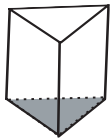
[Lesson 4-60; Lesson 5-45; Lesson 6-23]

**Trapezoid** a quadrilateral with only one pair of parallel sides.

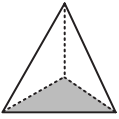
[Lesson 4-144; Lesson 5-71; Lesson 6-14]

**Triangle** a polygon with three sides and three angles. [Lesson 1-8]

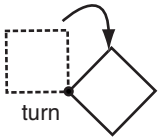
Number of Fish	
Ted	
Stu	



**Triangular Prism** a three-dimensional figure with 6 vertices, 6 straight edges, 3 rectangular flat faces and 2 triangular flat faces. [Lesson 4-40; Lesson 5-20; Lesson 6-15]



**Triangular Pyramid** a three-dimensional figure with 4 vertices, 6 straight edges and 4 triangular flat faces. [Lesson 4-40; Lesson 5-20; Lesson 6-15]



**Turn** the movement of a figure around a point. See **Rotation**.  
[Lesson 2-135; Lesson 3-120; Lesson 4-60; Lesson 5-45; Lesson 6-23]

**Two-Dimensional Figure** a figure that has only length and width.  
[Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Two-Step Word Problem** a word problem in which the results from the first step are used to solve the second step of the problem. [Lesson 2-104]

## U

**Union of Sets** the values or items that are within any of the sets being evaluated.  
[Lesson 4-44; Lesson 5-53; Lesson 6-45]

**Unlikely Event** an event that has a probability of less than one half. [Lesson 6-34]

## V

**Velocity** the rate of position change in a given direction over time, calculated by dividing distance by time. [Activity 6-14]

**Venn Diagram** a diagram of circles or other shapes that shows the relationships among different sets of items. [Lesson 2-10; Lesson 4-44; Lesson 5-53; Lesson 6-45]

**Vertex** the point at which at least three straight edges (three-dimensional figures) or two straight lines (two-dimensional figures) come together. The plural of vertex is **Vertices**.  
[Lesson 4-40; Lesson 5-20; Lesson 6-15]

**Vertical Angles** two angles that are opposite each other. Vertical angles are congruent.  
[Lesson 6-88]

**Vertices** the plural of **Vertex**. [Lesson 5-20; Lesson 6-15]

**Volume** a measurement of the number of cubic units it takes to fill a three-dimensional figure.  
[Lesson 2-65; Lesson 4-95; Lesson 5-72; Lesson 6-59]

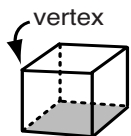
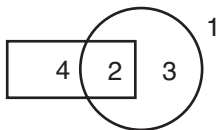
**Volume of a Cylinder** area of base ( $\pi r^2$ ) x height of cylinder, measured in cubic units.  
[Lesson 6-139]

**Volume of a Rectangular Prism** length x width x height, measured in cubic units.  
[Lesson 6-59]

**Volume of a Triangular Prism** area of base ( $1/2 \times \text{base} \times \text{height}$ ) x height of prism, measured in cubic units. [Lesson 6-139]

## W

**Weight** a measurement of how heavy an object is.  
[Lesson 2-60; Lesson 4-29; Lesson 5-12; Lesson 6-10]



**Whole** a complete quantity. For example, four fourths equal one whole. [Lesson 2-120]

**Whole Number** any of the numbers 0, 1, 2, 3, 4, etc. that do not have a decimal or fractional part. [Lesson 5-62; Lesson 6-1]

**Width** the horizontal dimension of a two- or three-dimensional figure.  
[Lesson 3-116; Lesson 5-56; Lesson 6-15]

## XYZ

**X-Axis** on a coordinate grid, the horizontal axis. [Lesson 5-52; Lesson 6-32]

**X-Coordinate** in an ordered pair, the value that is written first. [Lesson 5-52; Lesson 6-32]

**Y-Axis** on a coordinate grid, the vertical axis. [Lesson 5-52; Lesson 6-32]

**Y-Coordinate** in an ordered pair, the value that is written last. [Lesson 5-52; Lesson 6-32]

**Yard (yd)** a standard length measurement that equals 36 inches. [Lesson 4-29]

**Zero Property of Addition** any number added to zero will have itself as the sum.  
[Lesson 5-96; Lesson 6-38]

**Zero Property of Multiplication** any number multiplied by zero will have a product of zero. [Lesson 5-96; Lesson 6-38]



# QUICK REFERENCE

## MATH SYMBOLS

- + add
- subtract
- x multiply
- multiply
- ÷ divide
- = is equal to
- ≠ is not equal
- ≈ is approximately equal to
- ~ similar
- ≡ congruent
- < less than
- > greater than
- ≤ less than or equal to
- ≥ greater than or equal to
- √ square root
- π pi = 3.14 or 22/7
- △ triangle symbol

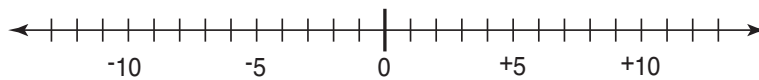
## PUNCTUATION

- % percent
- . decimal point
- , comma (1,000s)
- ( open parenthesis
- ) closed parenthesis
- [ open bracket
- ] closed bracket
- ° degree
- { } indicates a set

## CURRENCY

- £ British pound
- \$ Canadian dollar
- ¥ Chinese yuan renminbi
- € European Union euro
- Rs Indian rupee
- \$ Mexican peso
- ¥ Japanese yen
- ₽ Russian ruble
- \$ U.S. dollar
- ¢ U.S. cent

## INTEGER NUMBER LINE



## ORDER OF OPERATIONS

1. Parentheses
2. Exponents
3. Multiplication (from left to right)
4. Division (from left to right)
5. Addition (from left to right)
6. Subtraction (from left to right)

*\*\*Please Excuse My Dear Aunt Sally*

## FORMULAS

*Area*

**parallelogram** = base x height

**rectangle** = length x width

**triangle** = 1/2 ( base x height)

*Volume*

**cylinder** = area of base x height of cylinder

**rectangular prism** = l x w x h

**triangular prism** = area of base x height of prism

## PLACE VALUE UNITS

1	2	3	4	• 5	6	7	8	9	0	1	2	3	4	5	6	7	8
thousands	hundreds	tens	ones	tenths	hundredths	thousandths	ten thousandths	hundred thousandths	millionths	ten millionths	hundred millionths	billionths	ten billionths	hundred billionths	trillionths	ten trillionths	hundred trillionths