Vocabulary

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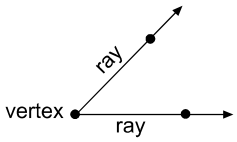
Use the vocabulary words and definitions below as a reference for this unit.

additive identity .....the number zero (0); when zero (0) is added to another number the sum is the number itself
Example: 5 + 0 = 5

additive inverses .....a number and its opposite whose sum is zero (0); also called *opposites*
Example: In the equation 3 + (-3) = 0, the additive inverses are 3 and -3.

angle (∠) .....two rays extending from a common endpoint called the vertex; measures of angles are described in degrees (°)



area (*A*) .....the measure, in square units, of the inside region of a closed two-dimensional figure; the number of square units needed to cover a surface
Example: A rectangle with sides of 4 units by 6 units has an area of 24 square units.

associative property .....the way in which three or more numbers are grouped for addition or multiplication does *not* change their sum or product, respectively
Examples: (5 + 6) + 9 = 5 + (6 + 9) *or*
(2 x 3) x 8 = 2 x (3 x 8)

commutative property .....the order in which any two numbers are added or multiplied does *not* change their sum or product, respectively
Examples: 2 + 3 = 3 + 2 *or*
4 x 7 = 7 x 4

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consecutive ..... in order
Example: 6, 7, 8 are consecutive whole numbers and 4, 6, 8 are consecutive even numbers.

cube (power) ..... the third power of a number
Example: $4^3 = 4 \times 4 \times 4 = 64$;
64 is the cube of 4

cubic units ..... units for measuring volume

decrease ..... to make less

degree (°) ..... common unit used in measuring angles

difference ..... a number that is the result of subtraction
Example: In $16 - 9 = 7$, the difference is 7.

distributive property ..... the product of a number and the sum or difference of two numbers is equal to the sum or difference of the two products
Examples: $x(a + b) = ax + bx$
$5(10 + 8) = 5 \bullet 10 + 5 \bullet 8$

equation ..... a mathematical sentence stating that the two expressions have the same value
Example: $2x = 10$

equivalent
(forms of a number) ..... the same number expressed in different forms
Example: $\frac{3}{4}$, 0.75, and 75%

even integer ..... any integer divisible by 2; any integer with the digit 0, 2, 4, 6, or 8 in the units place; any integer in the set {… , -4, -2, 0, 2, 4, …}

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expression ..... a mathematical phrase or part of a number sentence that combines numbers, operation signs, and sometimes variables
Examples: $4r^2$; $3x + 2y$;
An expression does not contain equal (=) or inequality (<, >, ≤, ≥, or ≠) signs.

formula ..... a way of expressing a relationship using variables or symbols that represent numbers

graph of a number ..... the point on a number line paired with the number

increase ..... to make greater

inequality ..... a sentence that states one expression is greater than (>), greater than or equal to (≥), less than (<), less than or equal to (≤), or not equal to (≠) another expression
Examples: $a \neq 5$ *or* $x < 7$ *or* $2y + 3 \geq 11$

integers ..... the numbers in the set
{… , -4, -3, -2, -1, 0, 1, 2, 3, 4, …}

inverse operation ..... an action that undoes a previously applied action
Example: Subtraction is the inverse operation of addition.

irrational number ..... a real number that cannot be expressed as a ratio of two integers
Example: $\sqrt{2}$

length (*l*) ..... a one-dimensional measure that is the measurable property of line segments

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like terms ..... terms that have the same variables and the same corresponding exponents
Example: In $5x^2 + 3x^2 + 6$, the like terms are $5x^2$ and $3x^2$.

measure (m) of an angle (∠) ..... the number of degrees (°) of an angle

multiplicative identity ..... the number one (1); the product of a number and the multiplicative identity is the number itself
Example: 5 x 1 = 5

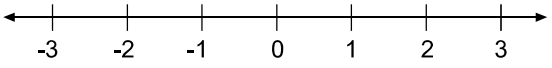
multiplicative inverse ..... any two numbers with a product of 1; also called *reciprocals*
Example: 4 and $\frac{1}{4}$; zero (0) has no multiplicative inverse

multiplicative property of -1 ..... the product of any number and -1 is the opposite or additive inverse of the number
Example: $-1(a) = -a$ and $a(-1) = -a$

multiplicative property of zero ..... for any number a, $a \bullet 0 = 0$ and $0 \bullet a = 0$

negative numbers ..... numbers less than zero

number line ..... a line on which numbers can be written or visualized



odd integer ..... any integer not divisible by 2; any integer with the digit 1, 3, 5, 7, or 9 in the units place; any integer in the set {… , -5, -3, -1, 1, 3, 5, …}

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order of operations ..... the order of performing computations in parentheses first, then exponents or powers, followed by multiplication and/or division (as read from left to right), then addition and/or subtraction (as read from left to right); also called *algebraic order of operations*
Example: $5 + (12 - 2) \div 2 - 3 \times 2 =$
$5 + 10 \div 2 - 3 \times 2 =$
$5 + 5 - 6 =$
$10 - 6 =$
4

perimeter (*P*) ..... the distance around a figure

positive numbers ..... numbers greater than zero

power (of a number) ..... an exponent; the number that tells how many times a number is used as a factor
Example: In 2^3, 3 is the power.

product ..... the result of multiplying numbers together
Example: In $6 \times 8 = 48$, the product is 48.

quotient ..... the result of dividing two numbers
Example: In $42 \div 7 = 6$, the quotient is 6.

ratio ..... the comparison of two quantities
Example: The ratio of a and b is $a:b$ or $\frac{a}{b}$, where $b \neq 0$.

rational number ..... a number that can be expressed as a ratio $\frac{a}{b}$, where a and b are integers and $b \neq 0$

real numbers ..... the set of all rational and irrational numbers

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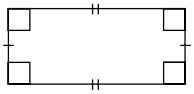
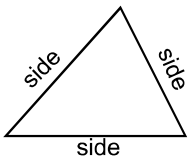
reciprocals ..... any two numbers with a product of 1; also called *multiplicative inverse*
Examples: 4 and $\frac{1}{4}$ are reciprocals because $\frac{4}{1} \times \frac{1}{4} = 1$; $\frac{3}{4}$ and $\frac{4}{3}$ are reciprocals because $\frac{3}{4} \times \frac{4}{3} = 1$; zero (0) has no multiplicative inverse

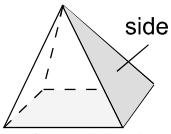
rectangle ..... a parallelogram with four right angles



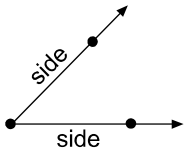
side ..... the edge of a polygon, the face of a polyhedron, or one of the rays that make up an angle
Example: A triangle has three sides.



edge of a polygon



face of a polyhedron



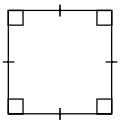
ray of an angle

simplify an expression ..... to perform as many of the indicated operations as possible

solution ..... any value for a variable that makes an equation or inequality a true statement
Example: In $y = 8 + 9$
$y = 17$ 17 is the solution.

solve ..... to find all numbers that make an equation or inequality true

square ..... a rectangle with four sides the same length



square (of a number) ..... the result when a number is multiplied by itself or used as a factor twice
Example: 25 is the square of 5.

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square units ..... units for measuring area; the measure of the amount of an area that covers a surface

substitute ..... to replace a variable with a numeral
Example: $8(a) + 3$
$8(5) + 3$

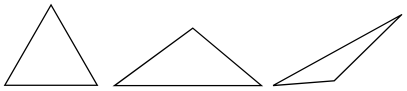
substitution property of equality ..... for any numbers a and b, if $a = b$, then a may be replaced by b

sum ..... the result of adding numbers together
Example: In $6 + 8 = 14$, the sum is 14.

symmetric property of equality ..... for any numbers a and b, if $a = b$, then $b = a$

table (or chart) ..... a data display that organizes information about a topic into categories

triangle ..... a polygon with three sides



variable ..... any symbol, usually a letter, which could represent a number

width (w) ..... a one-dimensional measure of something side to side