**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Hour: \_\_\_\_\_\_\_**

**Study Guide #1: Expressions and Equations (Version #1)**

**Math Properties: Write the correct vocabulary term for each definition.**

**1. Properties 2. Identity Property** **3. Associative Property 4. Commutative Property 5. Distributive Property 6. Zero Property 7. Equivalent Expressions 8. Numerical Expression 9. Algebraic Expression 10. Equation**

1. To multiply a sum by a number, multiply each addend of the sum by the number outside the parentheses. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. The way in which three numbers are grouped when they are added or multiplied does not change their sum or product. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. The product of any number and zero is always zero. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. The order in which two numbers are added or multiplied does not change their sum or product. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Statements that are true for any number or variable. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. The sum of an addend and 0 is the addend. The product of a factor and 1 is the factor. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. This is when two expressions have the same value. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. An expression that contains numbers, at least one mathematical operation, no variable, no equal sign and can be evaluated. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. An expression that contains numbers, at least one mathematical operation, variable(s), no equal sign and can be evaluated if the value of variable is known or given. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. A statement that the values of two mathematical expressions are equal. It contains numbers, at least one mathematical operation, variable, an equal sign and can be evaluated. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Match the correct vocabulary word to its definition.**

**A. Equivalent B. Equation C. Exponent D. Algebra E. Constant F. Coefficient G. Composite Number H. Prime Number I. Term J. Sum K. Product L. Quotient M. Addend N. Difference O. Dividend P. Divisor**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_In a power, the number that tells how many times the base is used as a factor.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_An answer to a subtraction problem

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The branch of mathematics that involves expressions with variables

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Each number in a sequence or expression

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A number in an addition problem

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The answer to a multiplication problem

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The numerical factor of a term that contains a variable

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A whole number greater than 1 that has more than two factors

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A whole number greater than 1 that has exactly two factors, 1 and itself

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The answer to a division problem

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The number you divide by

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A term that does not contain a variable

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The answer to an addition problem

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A mathematical sentence that contains an equal sign

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Equal or having the same value

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The number or amount we are dividing in a division problem.

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**Match the correct vocabulary word to its definition.**

**A. Solution B. Factors C. Greatest Common Factor (GCF) D. Least Common Multiple (LCM) E. Least Common Denominator (LCD) F. Order of Operations G. Ratio H. Variable I. Solving an Equation J. Evaluate K. Simplest Form L. Standard Notation M. Exponential Notation N. Expanded Notation O. Quantity**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_To find the value of an expression

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Numbers written with exponents

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The number as we normally write it. Example: 382.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The number that is being added, subtracted, multiplied or divided inside parentheses.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Writing a number to show the value of *each* digit; It is shown as a sum of each digit multiplied by its matching place value. (Ex. 4357 = 4x1000 + 3x100 + 5x10 + 7x1)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Two or more numbers that are multiplied together to form a product.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The largest of the common factors of two or more numbers.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The smallest of the common multiples of two or more numbers.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The rules to follow when more than one operation is used in a numerical expression.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A comparison of two numbers by division

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The process of finding a solution to an equation.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A value for the variable that makes an equation true.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A placeholder, usually a letter, used to represent an unspecified/unknown value in math expressions or sentences.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A fraction is in simplest form when the GCF of the numerator and denominator is 1.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The smallest common multiple of the denominators of two or more fractions.

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**Match the correct vocabulary word to its definition.**

**A. Coordinate Plane/Grid B. Ordered Pair/Coordinate Pair C. x-axis D. y-axis E. Isolate the Variable F. Quadrants G. Function H. Domain I. Range J. Output K. Input L. Independent Variable M. Dependent Variable N. Standard Algorithm O. Inequality**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A step-by-step process to get a solution to a math problem.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A value for the variable that you put into a function; the input of a function.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The value you get as an answer to a function; the output of a function.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_This is another name for the domain of a function.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_This is another name for the range of a function.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The plane containing the "x" axis and "y" axis.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The set of all output values of a function.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_All the values that go into a function; The set of all input values of a function.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Any of the 4 areas made when we divide up a plane by an **x** and **y** axis (as shown). They are usually numbered I, II, III and IV.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The line on a graph that runs vertically (up-down) through zero. It is used as a reference line so you can measure from it.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The line on a graph that runs horizontally (left-right) through zero. It is used as a reference line so you can measure from it.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A special relationship where each input has a single output. It is often written as "f(x)" where x is the input value.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Two numbers written in a certain order. Usually written in parentheses like this: (4,5) Can be used to show the position on a graph, where the "x" (horizontal) value is first, and the "y" (vertical) value is second.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The process of using inverse operations to undo addition, subtraction, multiplication, and division to get the variable alone.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_This says two values are not equal (a ≠ b says that a is not equal to b). There are special symbols that show in *what way* things are not equal (<, >, ≤, ≥ ).