

Algebra Key Concepts

Quiz 1	
a letter used to represent an unknown number	variable
to rewrite an expression in its simplest form [solve]	simplify
to replace variables with numbers and then simplify	evaluate
The _____ says that an expression may be replaced by another expression that has the same value.	substitution principle
words that mean addition	sum, plus, and, increased, more than
words that mean subtraction	difference, minus, decreased, less than, remainder
words that mean multiplication	product, times, of, by
words that mean division	quotient, divided, ratio, parts of
When translating "less than"	reverse the order
translate: a number is six less than twice another number	$x = 2y - 6$
When translating _____, _____, and _____ you probably use (). ex. translate: twice the sum of a and b.	"the sum of __ and __", "the quantity", "which is" $2(a+b)$
In a word problem the verb (usually "is") represents _____	=
The order of operations used to simplify an expression is _____	G – grouping (), [], $\frac{1+2}{3}$ E – exponents M – multiplication D – division A – addition S – subtraction
Represents two things that are equal to one another [problem with an = sign]	Equation
An equation with one or more variables	Open Sentence
Any value of a variable that turns an open sentence into a true statement [solution to an equation]	Root
One or more terms connected by plus or minus sign. [problem with out an = sign] (Ex. $3 + a$, $4y - z$)	Expression
The given set of numbers that a variable may represent. [input values] Written with the symbol _____	Domain \in
The set of corresponding positive and negative numbers and zero (Ex. ..., -2, -1, 0, 1, 2, ...)	Integers
The entire collection of integers and positive and negative fractions	Rational numbers
Numbers that cannot be expressed as the ratio of two integers	Irrational numbers
The set of rational and irrational numbers	Real numbers
The representation of real numbers as points on a line	Number line (or number scale)

The distance between a number and zero on the number line	Absolute value
Symbol used to represent the absolute value of a number, n	n
If one number is greater than another	Then it is higher or further to the right on a number line
The value of a number	a number's distance and direction from zero
The absolute value is	Absolutely positive!
Quiz 2	
Commutative Property	the order in which you add or multiply real numbers does not affect the result. $a + b = b + a$ $ab = ba$ (for all real numbers a,b)
Associative Property	if you are only adding or multiplying real numbers the grouping of the numbers does not affect the result $(a + b) + c = a + (b + c)$ and $(ab)c = a(bc)$ (for all real numbers a,b,c)
_____ sometimes makes adding or multiplying groups of numbers much easier. ex. $4 \cdot 17 \cdot 25 \cdot 10 = \underline{\hspace{2cm}}$	Associative property 17,000
Distributive Property	$a(b + c) = ab + ac$ (for all real numbers a,b,c)
We use the distributive property for two reasons:	1. when we get stuck simplifying with GEMDAS [to destroy parenthesis] 2. to simplify addition and multiplication.
Use the distributive property to multiply $3 \cdot 6.3$	$3 \cdot 6.3 = 3(6 + 0.3)$ $= 18 + 0.9 = 18.9$
Use the distributive property to solve $75 \cdot 17 + 25 \cdot 17$	$17(75 + 25)$ $17(100) = 1,700$
If equals are +, -, *, / to equals	The results are equal
Either a single number or letter or the product (or quotient) of several numbers or letters. [Things added together] ex. 7, 5ax, 2(a+b), 3yz/2.	Term
What happens when you divide a number by zero? (Ex. $5/0$, $y/0$, or $3/x$ if $x = 0$)	Undefined (meaningless)
Expressions that are equal to the same quantity are	Equal
To add numbers with the same sign	add the numbers and keep the sign
To add numbers with different signs	subtract the numbers and keep the sign of the larger number.
Rules for Multiplication: For any real number a $a \cdot 1 = \underline{\hspace{1cm}}$, $a \cdot 0 = \underline{\hspace{1cm}}$, $a(-1) = \underline{\hspace{1cm}}$ If two numbers have the same sign, their product is If two numbers have different signs their product is	a, 0, -a positive negative
A negative times a negative =	a positive
If you multiply an even number of negatives the answer will be _____	positive
If you multiply an odd number of negatives the answer will be _____	negative

The reciprocal of $-3/4$ is _____	$-4/3$
Any real number divided by itself is _____	1
Fill in the blanks: a) $-1 + \underline{\quad} = 0$ b) $2 + \underline{\quad} = 0$ c) $-3/4 + \underline{\quad} = 0$ d) $-1(\underline{\quad}) = 1$ e) $2(\underline{\quad}) = 1$ f) $-3/4(\underline{\quad}) = 1$	a) 1 b) -2 c) $3/4$ d) -1 e) $1/2$ f) $-4/3$
dividing by 2 is the same as multiplying by _____	$1/2$
Rules for division: If two numbers have the same (different) sign, their quotient is _____ (_____)	positive (negative)