Algebra 1 Reviews

Foundations of Algebra
Solving Linear Equations
Other Equations
Inequalities
Linear Functions
Systems of Equations & Inequalities
Radical Equations & Functions
Exponents & Exponential Functions
Polynomials
Quadratic Equations & Functions

BONUS: Characteristics of Graphs

Foundations of Algebra

Part 1

vocabulary:

base
coefficient
evaluate
exponent
expression
factors
order of operations
power
operations
product
term
variable
verbal phrase

algebraic expression

$3x^2 + 4x - 2$

individual terms

Terms have **variables** that are letters...

placeholders for #s

Expressions are made of terms, variables and **operations**.

$3x$, $4y^2$, $7t-4$

$3x^2$

exponent

base

coefficient

Terms called **powers** include bases and exponents.

Factors like "3x" and "y" multiply together to form **products**.

factors: $3x, y$

product: $3xy$

Expressions can be written as **verbal phrases**/sentences.

$3x^2-2$ → two less than the product of three and a number squared

Expressions can also be evaluated for specific values of a variable.

$3x^2+4y-z$

where
$x=7$
$y=-2$
$z=3$

evaluate...

$3(7)^2+4(-2)-3$
$=3(49)+(-8)+3$
$=147-11$
$=136$

Order of Operations

↳ order matters!

P: ( ) OR [ ]

E: x^2

M ↔ D: $\times$ OR $\div$

A ↔ S: $+$ OR $-$

↳ whichever comes first left to right

$8+[3^2\times(4+2)]-\frac{12}{2}$
$=8+[3^2\times 6]-\frac{12}{2}$
$=8+[9\times 6]-\frac{12}{2}$
$=8+54-\frac{12}{2}$
$=8+54-6$
$=62-6$
$=56$

Foundations of Algebra

Part 2

vocabulary:

- additive identity
- additive inverse
- associative
- commutative
- distributive property
- multiplicative identity
- multiplicative inverse
- multiplicative zero property

associative property: Change grouping ✓

Addition: $(2+3)+4 = 2+(3+4)$

Multiplication: $(4\times5)\times6 = 4\times(5\times6)$

Commutative Property: change order ✓

Addition: $4+7=7+4$

Multiplication: $3\times5=5\times3$

DOES NOT work for SUBTRACTION or DIVISION!!!

X

adding

additive identity

$a+0=a$

$0+a=0$

Ex. $4+0=4$, $0+4=4$

additive inverse

$a+(-a)=0$

$(-a)+a=0$

Ex. $4+(-4)=0$, $(-4)+4=0$

multiplying

multiplicative identity

$a\cdot1=a$

$1\cdot a=a$

Ex. $1\cdot5=5$, $5\cdot1=5$

multiplicative inverse

$a\cdot\frac{1}{a}=1$

$\frac{1}{a}\cdot a=1$

Ex. $5\cdot\frac{1}{5}=1$

$\frac{1}{5}\cdot5=1$

multiplicative zero property

$a\cdot0=a$

$0\cdot a=a$

Ex. $5\cdot0=0$, $0\cdot5=0$

distributive property

$a(b+c)=ab+ac$

Ex. $4(x+2)=(4)(x)+(4)(2)=4x+8$

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