Evaluating Expressions

Order of Operations

P Parentheses and other grouping symbols

E Exponents

M/D Multiplication and Division from left to right

A/S Addition and Subtraction from left to right

1. $-8^3 = -512$

2. $(-2)^8 = 256$

3. $(-8)^2 = 64$

4. $-10x + 15$ when $x = 2$

$-10(2) + 15$

$-20 + 15$

-5

5. $6h \div 2 + h$ when $h = 4$

$6(4) \div 2 + (4)$

$24 \div 2 + 4$

$12 + 4$

16

6

Properties & Like Terms

Properties of Addition and Multiplication

Let a, b, and c be real numbers.

Property	Addition	Multiplication
Closure	$a + b$ is a real number.	ab is a real number.
Commutative	$a + b = b + a$	$ab = ba$
Associative	$(a + b) + c = a + (b + c)$	$(ab)c = a(bc)$
Identity	$a + 0 = a, 0 + a = a$	$a \cdot 1 = a, 1 \cdot a = a$
Inverse	$a + (-a) = 0$	$a \cdot \frac{1}{a} = 1, a \neq 0$

The following property involves both addition and multiplication.

Distributive $a(b + c) = ab + ac$ $(b + c)a = ba + ca$

Like Terms

Definition	Facts/Characteristics
Two or more terms that have the same variables and powers.	The coefficients (the number in front of the variable) don't matter.
Examples	**Non-Examples**
$4x$ and x $-12y^2$ and $5y^2$ -3 and 13 $\frac{3}{5}a$ and $\frac{a}{2}$	$7x$ and $10x^2$ $3b$ and 5

Simplify.

"Term and the sign in front."

$$3(x^2 - y) + 9(x^2 + 2y)$$

$$3x^2 - 3y + 9x^2 + 18y$$

$$12x^2 + 15y$$