LINEAR EQUATIONS

Guide to Solving Linear Equations:

1. **Distributive Property:** _____ each outside term(s) to the terms

    inside the _____.

2. **Combine Like Terms:** A common technique for _____

    _____ expressions by _____ or _____

    common terms by their _____.

3. **Move all variable terms to one side of the equation:** Use

    _____ or _____ to get all _____ with the

    variable on one side of the equation and all _____ terms on

    the other side. (Think about *Inverse Operations*)

4. **Isolate the variable:**

    a. _____ or _____ any constants to get the

        variable by itself.

    b. If the _____ has a _____ other than 1,

        _____ or _____ both sides of the

        equation by the _____ to solve for the

        _____.

5. **Check your solution:** _____ the solution back into the

    _____ equation to ensure makes the equation

    _____.

LINEAR EQUATIONS

1. Combine like Terms

Like and Unlike Algebraic Terms

cuemath
THE MATH EXPERT

Like Term	Unlike Term
$8x + 12x$	$6xy - 20y$

2. Inverse Operations

Operation	Inverse Operation
Addition	Subtraction
Subtraction	Addition
Multiplication	Division
Division	Multiplication

SplashLearn

3. Distribution Property

Linear Equations

Distributive Property Formula

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

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

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

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

4. PEMDAS

ORDER OF OPERATIONS

The order of operations tells you the sequence to follow when you are performing operations in a mathematical expression.

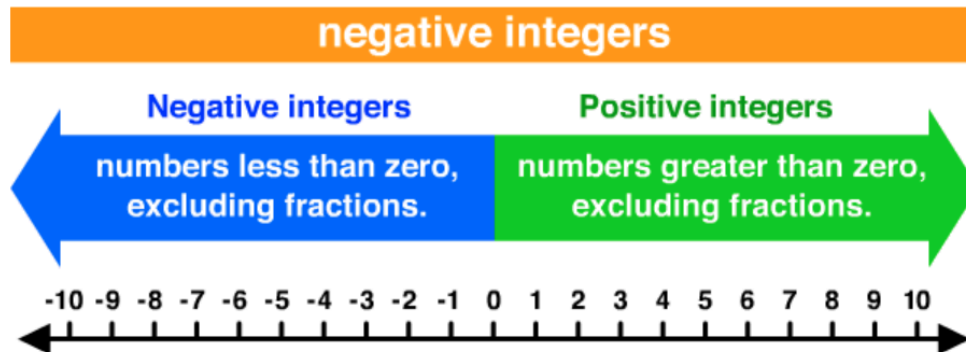| P	E	M D	A S
1	2	3	4
Parentheses	Exponents	Multiply or Divide	Add or Subtract
( )	a^2	X or ÷	➕ or ➖

© howstuffworks

LINEAR EQUATIONS

5. Negative Numbers

negative integer

• a number less than zero,
but not a fraction or a decimal fraction.
• written with a minus sign.

EXAMPLES:

negative integers

Negative integers
numbers less than zero, excluding fractions.

Positive integers
numbers greater than zero, excluding fractions.

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

Negative integers have a minus (-) sign in front of them.

operations on positive and negative integers

Addition

Positive + Positive = Positive	$5 + 3 = 8$
Negative + Negative = Negative	$(-5) + (-3) = -8$
* Positive + Negative or Negative + Positive	$(-5) + 3 = -2$
· subtract the smaller number from the larger number, then use the sign of the larger number in the answer	$3 + (-5) = -2$
	$(-3) + 5 = 2$
	$5 + (-3) = 2$

Subtraction

Negative - Positive = Negative	$(-5) - 3 = (-5) + (-3) = -8$
Positive - Negative = Positive	$5 - (-3) = 5 + 3 = 8$
* Negative - Negative = Negative + Positive	$(-5) - (-3) = (-5) + 3 = -2$
· treat as Negative + Positive	$(-3) - (-5) = (-3) + 5 = 2$
· subtract the smaller number from the larger number, then use the sign of the larger number in the answer	

Multiplication

Positive x Positive = Positive	$5 \times 3 = 15$
Negative x Negative = Positive	$(-3) \times (-5) = 15$
Negative x Positive = Negative	$(-3) \times 5 = -15$
Positive x Negative = Negative	$3 \times (-5) = -15$
· change double negatives to a positive	

Division

Positive ÷ Positive = Positive	$15 \div 3 = 5$
Negative ÷ Negative = Positive	$(-15) \div (-3) = 5$
Negative ÷ Positive = Negative	$(-15) \div 3 = -5$
Positive ÷ Negative = Negative	$15 \div (-3) = -5$
· change double negatives to a positive	