MODULE 1: LINEAR EQUATIONS AND INEQUALITIES

"WHEN THINGS DON'T ADD UP IN YOUR LIFE,

THEN MAYBE IT IS TIME TO START SUBTRACTING."

1.7 ALGEBRAIC EXPRESSIONS

An algebraic expression has _____.

Ex. Write a sample expression:

An equation has _____.

Ex. Write a sample equation:

The parts separated by addition and subtraction signs are called

_____.

What are the terms in the expression? $3x^2y + 5x - 7$

_____   _____   _____

Letters in an expression are called _____.

What are the variables in the expression? $3x^2y + 5x - 7$

_____   _____

Numbers in front of the variable are called _____.

What are the coefficients in the expression? $3x^2y + 5x - 7$

_____   _____

The number by itself is called the _____.

What is the constant in the expression? $3x^2y + 5x - 7$

_____

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Evaluating Algebraic Expressions

Evaluate means to _____ in and _____ .

Always plug in with _____ .

Ex. Evaluate the expression 2x − 4y given x =2 and y = -3

Homework Checklist

☐ *Section 1.7 Algebraic Expressions*

2.1 SIMPLIFY ALGEBRAIC EXPRESSION LISTENING GUIDE

When terms are side by side assume its _____ .

Ex. Multiply:

$$-4a(-2b)(-3c) \qquad\qquad (-2he)(2x)(-1y)$$

Distributive Property

When there is term outside a set of parentheses, _____

or _____ the number with everything inside.

Ex. Distribute:

$$-3(-2 - 4x + 2y) \qquad\qquad 4(6x - 5)2$$

A negative sign by itself, outside a set of parentheses is a ____.

Ex. Distribute:

$$-(x - 4) \qquad\qquad\qquad 3 - (2x + 8)$$

Like Terms

Like terms have the same _____ and _____.

You can only combine like terms together.

Ex. Distribute and combine like terms:

$$x(5 - 2x) + 3 - 4x^2 \qquad\qquad 5(x + 3) - 2(4 - x) - (3x - 1)$$

Homework Checklist

☐ *Section 2.1 Simplify Algebraic Expressions*

2.2 SOLVING EQUATIONS LISTENING GUIDE

Solving One Step Equations

Given subtraction use _____ to solve.

Given addition use _____ to solve.

Ex. Solve:

$$x - 10 = -5 \qquad\qquad\qquad x + 10 = -5$$

Given multiplication use _____ to solve.

Given division use _____ to solve.

Ex. Solve:

$$10x = -50 \qquad\qquad\qquad \frac{x}{10} = -5$$

Solving Two Step Equations

1. Do _____ or _____.

2. Then do _____ or _____.

Ex. Solve:

$-5(x-3) + 3x = 11$
$-7 + \frac{2}{3}x = 1$

Solving Equations with Variables on Both Sides

Move _____ to one side and

move _____ to the other side.

Ex. Solve:

$6x - 7 = 4x + 3$
$-(x-4) - 5x = 4(-8 - 3x)$

$3(x+5) - 4(x+4) = -x - 1$
$-4(x-3) + 2x = 2(10 - x)$

Left side equals the right side: _____.

Left side doesn't equal the right side: _____.

2.5 FORMULAS

1. _____ the variable that you are solving for.

2. Move everything _____ from that variable.

Ex. Solve for m: r = c + m

Ex. Solve for R: I = P R T

Ex. Solve for b1:   A = ½ h (b1 + b2)

Ex. Solve for w: P = 2 w + 2 l

Homework Checklist

☐ *Section 2.2 Solving Equations*

☐ *Section 2.5 Solving Literal Equations*

2.6 SOLVING INEQUALITIES

Inequality Symbols

Read inequality symbols _____ to _____ .

Ex.   x < 1 _____

            x > –3 _____

            x ≤ –4 _____

            x ≥ 5 _____

Inequality Line Graph

o : *open circle* if < or >

● : *closed circle* if ≤ or ≥

Ex.

            x > 1
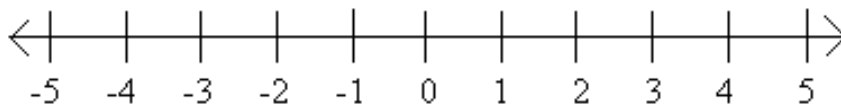
            x ≤ –3
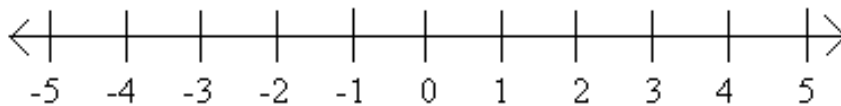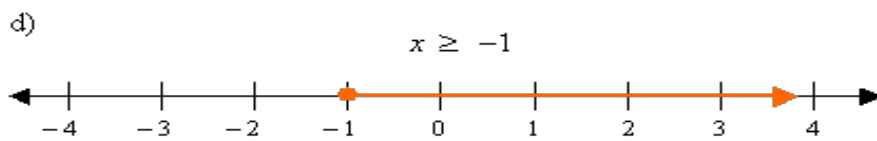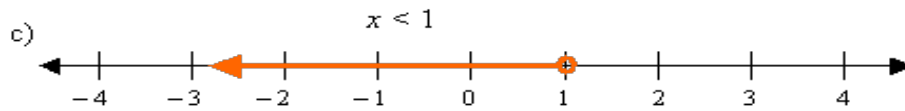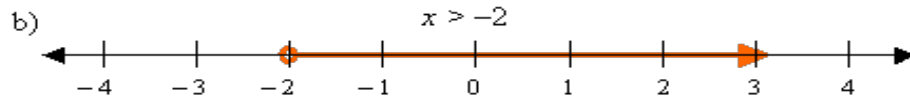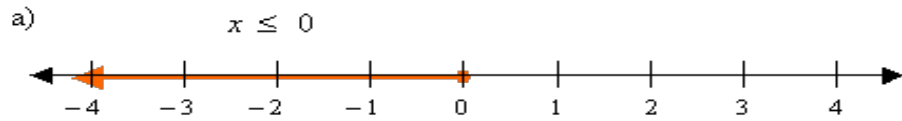

Interval Notation

Less than/Greater than: ( ) , < , > , o

Less than or equal to/Greater than or equal to: [ ] , ≤ , ≥ , ●

a)
$$x \leq 0$$

b)
$$x > -2$$

c)
$$x < 1$$

d)
$$x \geq -1$$

a. _____
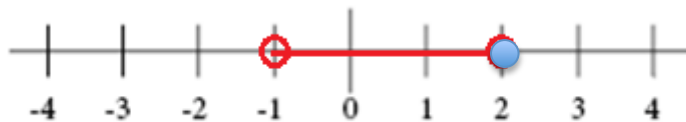
b. _____

c. _____

d. _____

Infinity is always written in _____.

Ex. *write the following as an inequality and in interval notation*

Inequality: _____

Interval notation: _____

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Solving Inequalities:

If multiply or divide by a _____, you

have to _____ the direction of the inequality.

Ex. Solve for x: $2x - 5 > 7$

Solve for x: $-3x + 2 \leq 23$

Compound Inequality

Solve both sides, at the _____time.

Ex. Solve for x: $-5 \leq -x + 4 < 6$

Ex. Solve for x: $-12 < 2x - 6 < 16$

Ex. Rewrite: $-9 \geq x$

Homework Checklist

☐ *Section 2.6 Solving Inequalities*

☐ *Module 1: Linear Equations and Inequalities*