Lesson #2: Sections 1.1 & 1.2

By the end of the lesson, you will be able to:

~ Solve problems using order of operations

~ Classify numbers into sets of numbers

~ Find products using the distributive property

Order of Operations

1st: Simplify the expressions inside grouping symbols

ex: grouping symbols

2nd: Evaluate all powers

ex: "What are powers"?

3rd: Do all multiplications & divisions from left to right

ex:

4th: Do all additions & subtractions from left to right

ex:

Order of Operations

Or an easier way to remember the rules of order of operations:

Lesson 1-3 Transparency B

1-3

Order of Operations

Please Excuse My Dear Aunt Sally!

Parentheses (or other grouping symbols)
Exponents
Multiplication and
Division (left to right)
Addition and
Subtraction (left to right)

Example 1:

Evaluate $8 + 3 \cdot 5^2 - (18 - 8) \div 5$.

Please Excuse My Dear Aunt Sally!

Parentheses (or other grouping symbols)
Exponents
Multiplication and
Division (left to right)
Addition and
Subtraction (left to right)

Example 2:

Evaluate: $20 \div 4 \cdot 5 \cdot 2 \div 10$

Please Excuse My Dear Aunt Sally!

Parentheses (or other grouping symbols)
Exponents
Multiplication and
Division (left to right)
Addition and
Subtraction (left to right)

Example 3:

Evaluate: $\dfrac{6^2 - 4^2}{2(3 - 2)} - 2^3$

Using substitution for variables

Example 1: Evaluate each expression when $v = 5$, $x = 3$, $a = 7$, and $b = 5$.

$$v^2 - (x^3 - 4b)$$

Using substitution for variables

Example 2:   Evaluate each expression when $v = 5$, $x = 3$, $a = 7$, and $b = 5$.

$$(2v)^2 + ab - 3x$$

Number Sets!

Natural Numbers-   Symbol: _____

Are counting numbers (positive numbers)

ex:

Whole Numbers-   Symbol: _____

Are all of the natural numbers including 0.

[remember whole #'s have a "hole" (0) in it]

ex:

Integers-   Symbol: _____

Are the whole numbers plus with the negative numbers

ex:

Rational Numbers-   Symbol: _____

Can be expressed as a ratio of two integers.*The decimal form of rational numbers are either a terminating or repeating decimal.*

ratio?:

ex:

Irrational Numbers-   Symbol: _____

Are any numbers that are NOT rational. *Irrationals have decimals that go on forever.*

ex:

Real Numbers-   Symbol: _____

Are all the numbers that you use in everyday life, they are rational and irrational numbers combined.
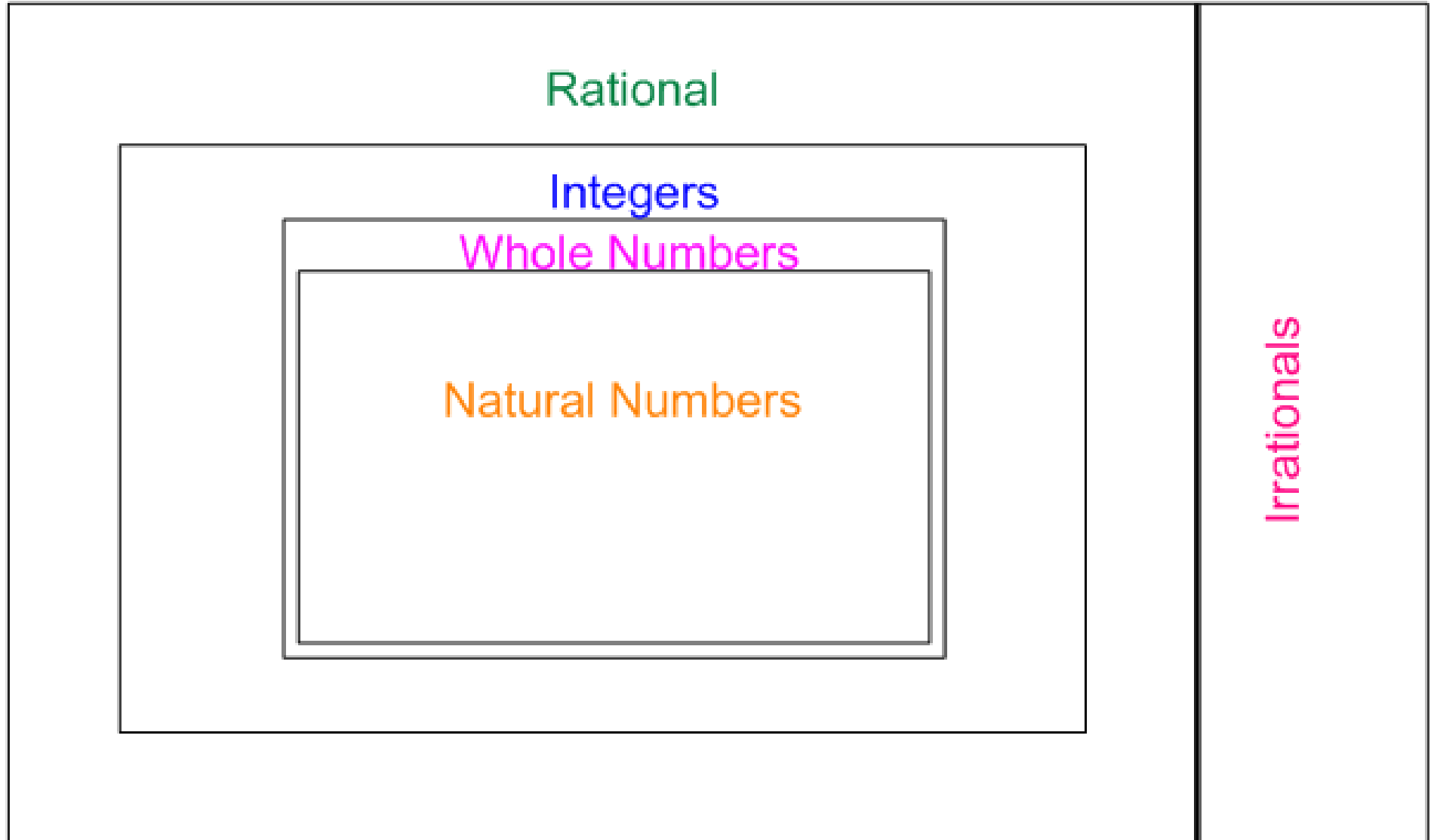
ex:

Classifying real numbers

Real Numbers

Rational

Integers

Whole Numbers

Natural Numbers

Irrationals

Classifying real numbers

Name the ALL the sets of numbers that each belongs to

a.) 5

b.) -32

c.) 3/4

d.) pi

Classifying real numbers

True or False? If false, give an example of why it is false.

a.) Every real number is irrational.

b.) Every integer is a rational number.

c.) Every integer is a whole number.

d.) Every whole number is an integer.

Classifying real numbers

<u>True or False? If false, give an example of why it is false.</u>

e.) Every irrational number is a real number.

f.) Every natural number is an integer.

g.) Every real number is either a rational number or an irrational number.

Distributive Property

What does DISTRIBUTE mean?

Distribute:

Distribute the cupcake.

$$\text{🧁} \left(\text{🧍} + \text{🧍} \right) =$$

This is the distributive property. We will be doing this to expressions with numbers and variables.

Find the product:

Use the distributive property.

$2x (y + 13) =$

Find the product for each:

Use the distributive property.

1. $7(6x + 5y + 2) =$

2. $2a^2(a - b) =$

Find the product for each:

Use the distributive property.

3. $\dfrac{1}{2}(3a - 2b) - \dfrac{3}{4}(4a + 2b)$

Find the product for each:

Use the distributive property.

4. $2(2a - b) + 6(3a + 4b)$

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Can you?

Homework:

Assignment #2:

Due at the end of next class