Algebra Preparation/Review

Math underlies EVERYTHING in life!

"Math is a system of thinking, and every problem in the world
benefits from thinking."

<div align="right">
Ben Orlin
Math with Bad Drawings
</div>

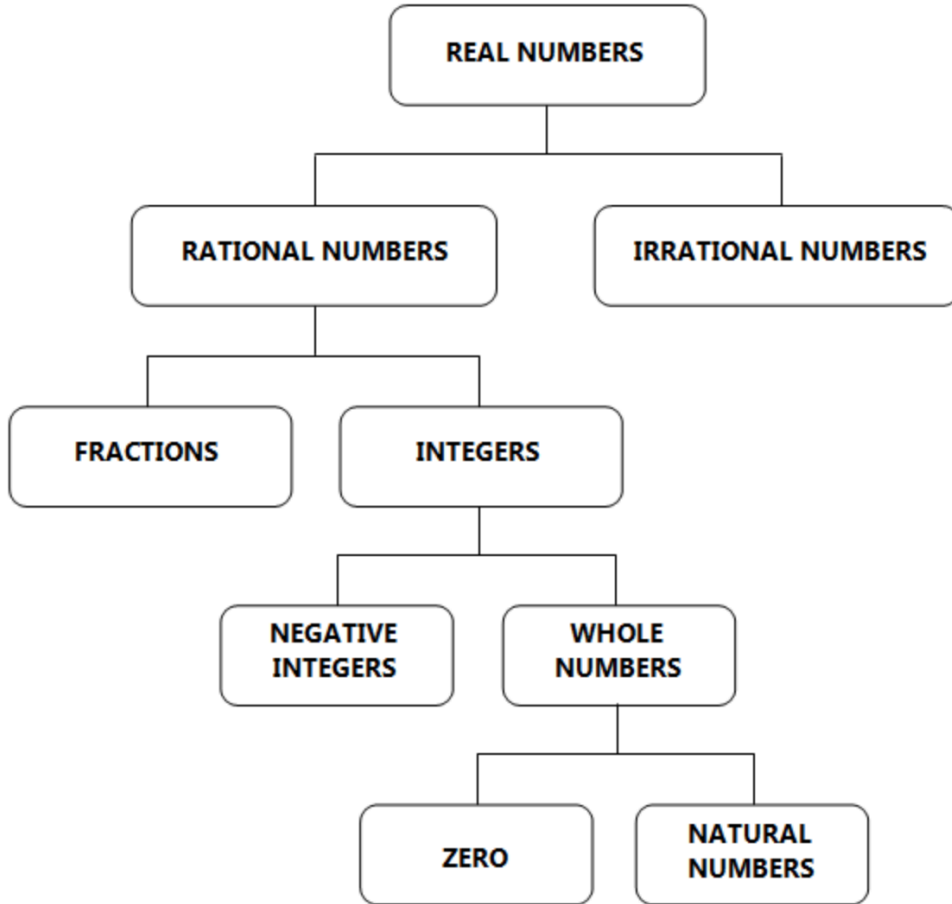Tic-Tac-Toe

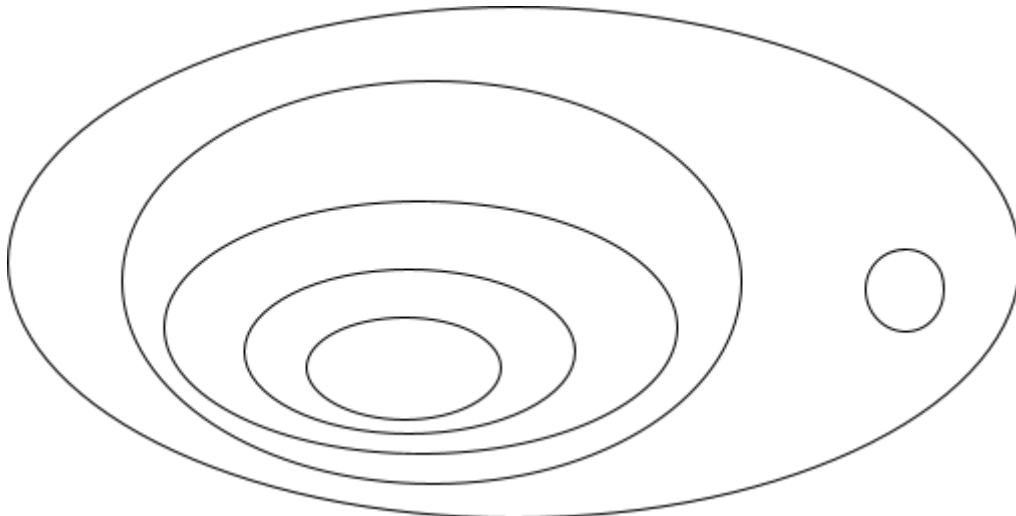Game #1   Game #2

Ultimate Tic-Tac-Toe

Numbers

Chapter: _____ to review or extra help

The Number System:

Color the Numbers and include examples:

```
                        REAL NUMBERS


        RATIONAL NUMBERS              IRRATIONAL NUMBERS


    FRACTIONS         INTEGERS


              NEGATIVE          WHOLE
              INTEGERS          NUMBERS


                         ZERO        NATURAL
                                     NUMBERS
```

Draw, Label, and Color the Circles:

Classify each number in as many categories as possible:

1. 62
2. 8/10
3. 9.28519692714385…
4. 0
5. 37
6. -260
7. -5/2
8. Π
9. 3.25197197197
10. √49

Algebraic Properties

Chapter: _____ to review or extra help

Commutative Property of Addition   and   Commutative Property of Multiplication

4+5 = 5+4   5x6 = 6x5

a+b = b+a   DxC = DxC

Draw Representation:

Associative Property of Addition   and   Associative Property of Multiplication

(1+4)+7 = 1+(4+7)   (3x4)x7 = 3x(4x7)

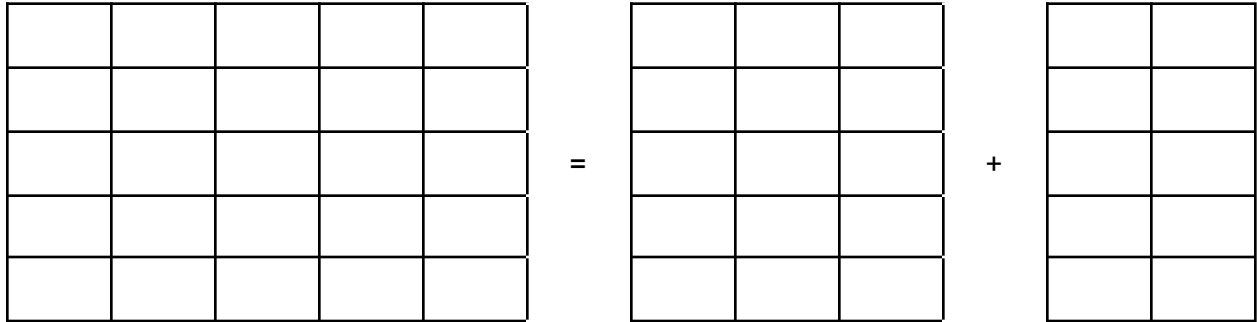(a+b)+c = a+(b+c)   _____

What's the difference between commutative properties and associative properties?

DISTRIBUTIVE PROPERTY:

Color in the blocks and label them to demonstrate the distributive property:

a(b+c) = ab = ac

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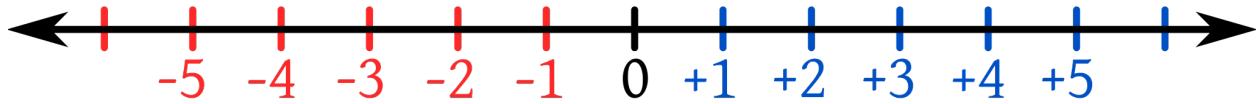<tr><td></td><td></td><td></td><td></td><td></td></tr>
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Practice:

1. **3(2+6) = 3x2 + 3x6**

   3x8 = 6 + 18

   24 = 24

2. **4(5+3) = _____**

   =

   =

3. **5(3+2+4) = _____**

4. **6(3 + t) = _____**

5. **5(x + y) = _____**

Positive and Negative Numbers:

NUMBER LINE

Use a number line to demonstrate and get the answers to the following problems:

1. 4+(-3) = ____

2. -4+5 = ____

3. 3+5 = ____

4. -5 + (-8) = ____

ABSOLUTE VALUE

Find the ABSOLUTE VALUE to solve:

5. 4+(-3) = ____

6. -4+5 = ____

7. 3+(-5) = ____

8. -5 +(3) = ____

9. Write your problem:

SUBTRACTING

Change the subtraction problem into an addition problem by using the **ADDITIVE INVERSE:**

10. 4-(-3) = ____

11. -4-5 = ____

12. 3-(-5) = ____

13. -5 -(3) = ____

14. Write your own problem:

COUNTERS:

+
+
+

+3

=

+	+	-
+	+	-
+	+	-

+3   +3   -3
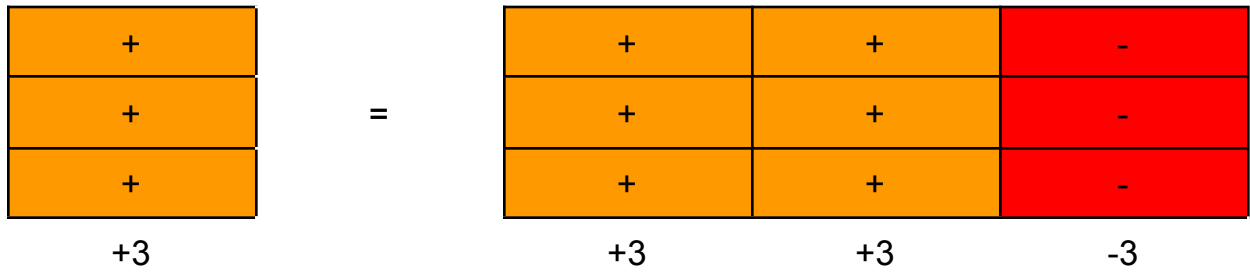
What number is being represented:

1.

+	+	+	

2.

-	-	-	-				
+	+	+	+	+	+	+	

3.

+					
-	-	-	-	-	

Use your counters to model and find the **sum** or **difference**:

4. 4+(-3)

5. -4+5

6. -25+20

7. -25+30

8. -3t+8t

9. -27t+(3t)

10. 25t+7

WORD PROBLEMS:

1. The temperature in Anchorage is reported to be 32 degrees, while the temperature in Fairbanks is -14 degrees. What is the difference in temperature between the two cities?

2. Megan is learning a new video game. In the first round, she earned 54 points. In the second round, she lost 67 points. What is Megan's total number of points after the second round?

3. Joe wants to buy a four-wheeler. In addition to his savings, he takes a loan from the bank for $3,400; his father and grandfather each loan him $1,500. How much debt will Joe acquire to buy his four-wheeler?

4. Write your own word problem:

(Insert 13 Hearts Riddle)

Order of Operation:

P_____

E_____

M_____ D _____

A _____ S _____

8(2 - 3) + 2

= _____

= _____

= _____

= _____

Practice

1. - 20 ÷ 5 x 2	5. $(3^2 - 5)^2 + 1^3$
2. -2 + 3(8+8)	6. $7 x 4^2 + 3^2 x 5$
3. -4 x 2 - 3 x 4 + 2 x 0	7. 23 + [22 - 3(4 + 1)]
4. - 100 + 24 ÷ 3	8. |-5| - |9| + |-20|

(Insert Secret Code - Order of Operation)

FRACTIONS

Equivalent Fractions:

	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81

3/5	=	6/10	=	9/15	=	12/20	=	
7/9	=	14/18	=		=		=	

8/32	=	7/28	=	6/24	=	5/20	=	1/4
45/72	=	35/56	=	20/32	=	15/	=	
27/54	=	24/48	=	21/	=	18/	=	/18
9/18	=	8/16	=		=		=	/2

(Insert Fraction Ordering Bookmark)

## Comparing & Ordering Fractions:
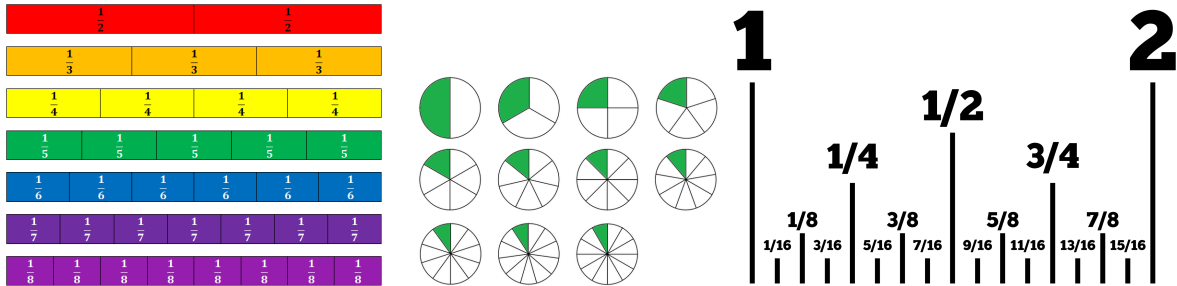
(Insert Comparing Fraction Work Sheet)

Money, Money, Money:

1 penny = \$0.01 = 1/100 of a dollar   (100 pennies = 1 dollar)

1 dime = \$0.10 = 10/100 = _____ of a dollar   (10 dimes = 1 dollar)

1 nickel = \$0.05 = 5/100 = _____ of a dollar   (20 nickels = 1 dollar)

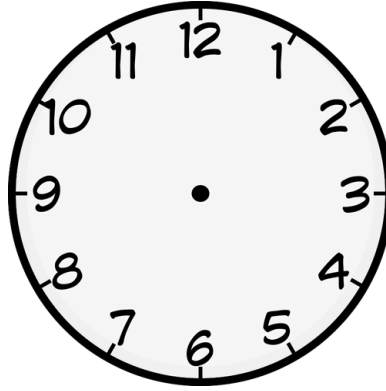1 quarter = \$0.25 = 25/100 = _____ of a dollar   (4 quarters = 1 dollar)

8 pennies	=	\$0.08	=	8/100 of a dollar	=	2/25 of a dollar
3 nickels	=`		=	/100 of a dollar	=	/ of a dollar
11 nickels	=		=		=	
3 quarters	=		=		=	

Time as a Fraction:
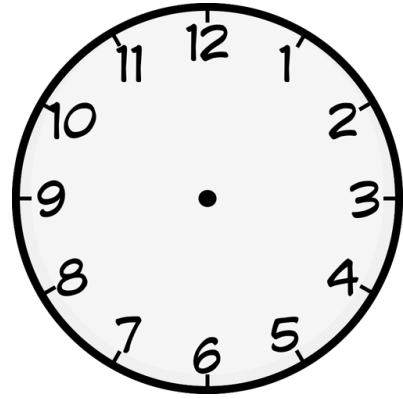
Color in the designated fraction:
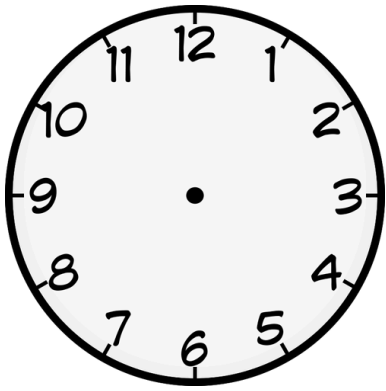
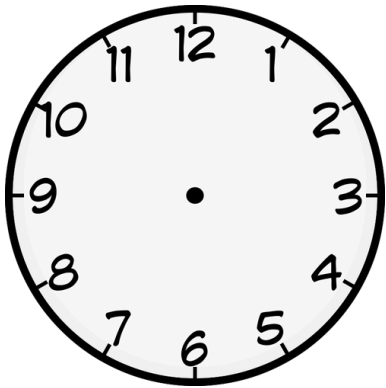¼ of an hour
or
____ minutes

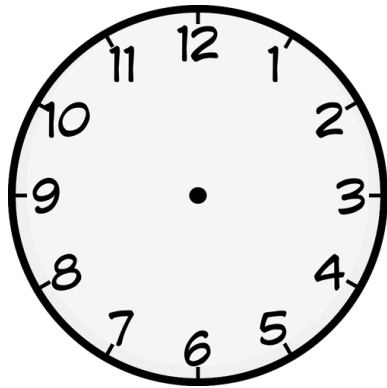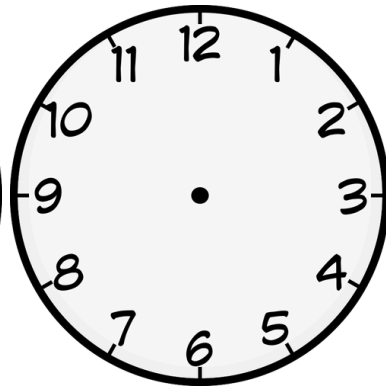one half an hour
or
____ minutes

¾ of an hour
or
____ minutes

One-sixth of an hour
or
____ minutes

One-third of an hour
or
____ minutes

1/12 of an hour
or
____ minutes

Statistics
Unit: _____ to review or extra help

Statistics is the organization, presentation, and study of data, which is a collection of facts in the form of numbers, words, or descriptions.

Quantitive Date: _____
_____
_____

Qualitative Date: _____
_____
_____

The measure of Central Tendency:
Chapter: _____ to review or extra help

Mean (average): _____
_____
_____
- A **MEAN** math teacher makes me do math!

Median: _____
_____
_____
- Middle of the road is called the median.

Mode: _____
_____
_____
- Ala mode - with ice cream, we want the MOST ice cream.

Range: _____
_____
_____