PLACE VALUE ANCHOR CHART

PLACE VALUE CHART TO THE MILLIONS										
10^6	10^5	10^4	10^3	10^2	10^1	10^0		1/10	1/100	1/1,000
Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
9,	3	4	6,	2	1	5	.	6	5	8

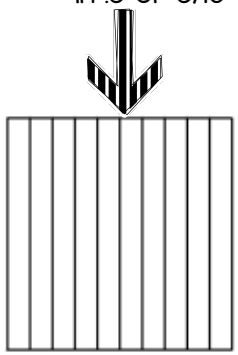
Standard Form
9,346,215.658

Expanded Form
$(9x10^6)+(3x10^5)+(4x10^4)+(6x10^3)+(2x10^2)+(1x10^1)+(5x10^0)+(6x1/10)+(5x1/100)+(8x1/1,000)$

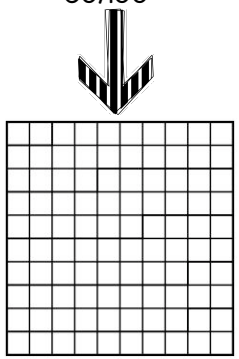
Word Form
nine million, three hundred forty six thousand, two hundred fifteen and six hundred fifty eight thousandths

VISUALIZING DECIMALS

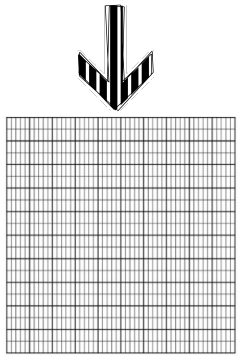
Tenths
Using a highlighter, color in .5 or 5/10



Hundredths
Using a highlighter, color in .50 or 50/100



Thousandths
Using a highlighter, color in .500 or 500/100



Multiplying by a Power of 10 $3.4 \times 10^2 = 340$

When multiplying, the product will become LARGER, so you need to shift the numbers to the LEFT and the decimal point to the RIGHT by the number of zeros in the power of 10.

Dividing by a Power of 10 $3.4 \div 10^2 = .034$

When dividing, the product will become SMALLER, so you need to shift the numbers to the RIGHT and the decimal point to the LEFT by the number of zeros in the power of 10.

COMPARING DECIMALS

> Greater Than < Less Than = Equal To

Comparing and Ordering Decimals

Step #1: Line up the numbers. Make sure to line them up according to their place value.
Helpful Hint: Line up the decimal points!
Step #2: Look at the largest place value (the left) and find the largest value.
Step #3: Use <, >, and = to explain the relationship between the numbers

34.66
34.50
34.43

34.66 > 34.50

Step #1: I lined up my numbers!
Step #2: The numbers in the greatest place value, 3s are equal. So I need to look at the next place to the right. The 4s have the same value, so I continue on to the next place to the right. The 6 is greater than 5, so I know 34.66 is greater than 34.50!

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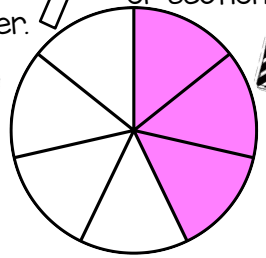
FRACTION ANCHOR CHART

PROPER FRACTION

$\frac{3}{7}$

Denominator
7 is the denominator. The denominator is the number of total parts or sections all together.

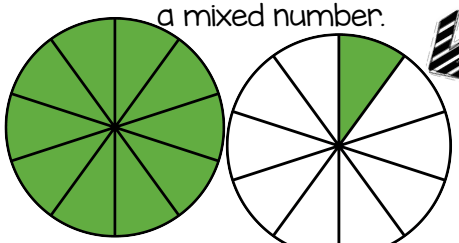
Numerator
3 is the numerator. The numerator is the number of parts or sections shaded.



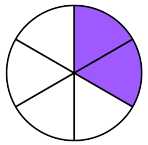
IMPROPER FRACTION

$\frac{11}{10}$

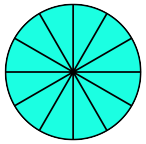
Improper Fraction
An improper fraction has a larger numerator than the denominator. This means that the fraction is larger than one whole and can be changed into a mixed number.



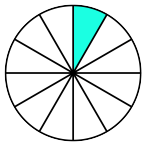
ADDING FRACTIONS

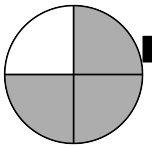


$\frac{2}{6}$ ×2 $\frac{4}{12}$



$\frac{3}{4}$ ×3 $\frac{9}{12}$





$\frac{13}{12}$

MIXED NUMBER

OR $1\frac{1}{12}$

Mixed Number
A mixed number is a whole number and a proper fraction combined together.

SUBTRACTING FRACTIONS

$\frac{3}{4}$ $\frac{9}{12}$

− $\frac{2}{6}$ $\frac{4}{12}$

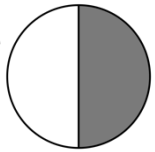
$\frac{5}{12}$

Adding and Subtracting Fractions
When you are adding and subtracting fractions with UNLIKE DENOMINATORS you need to find the LCM between BOTH denominators before you can add and subtract!

SIMPLEST FORM

$\frac{6}{12}$ ÷2 $\frac{3}{6}$ ÷2 $\frac{1}{2}$

÷2 ÷2



Simplest Form
Your fraction will be in the simplest form when the numerator and the denominator are both divided by a common factor (such as 2) until at least one number is a prime number and can't be divided further.

LEAST COMMON MULTIPLE (LCM)

$\frac{2}{6}, \frac{3}{4}$

DENOMINATOR	WRITE THE MULTIPLES OF THE DENOMINATOR HERE. HIGHLIGHT OR CIRCLE THE LCM.
4	4, 8, **12**, 16, 20, 24
6	6, **12**, 18

Least Common Multiple
The least common multiple is the smallest or lowest multiple of both numbers. Start multiplying each number by 1, 2, 3, and so on and the common number that is the smallest is the LCM. The LCM of 4 and 6 is 12.

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MULTIPLICATION ANCHOR CHART

53 times 27 equals 1,431

FACTOR X FACTOR = PRODUCT

ALGORITHM

		~~2~~		REGROUPING
		5	3	Factor
	X	2	7	Factor
	3	7	1	
1	0	6	0	
1,	4	3	1	Product

Partial Product

53
x 27
21 (7X3)
350 (50X7)
60 (20X3)
1,000 (50X20)
1,431

area MODEL

	50	3
7	350	21
20	1,000	60

ADD THEM UP!			
THOUSANDS	HUNDREDS	TENS	ONES
	3	5	0
		2	1
1	0	0	0
		6	0
1,	4	3	1

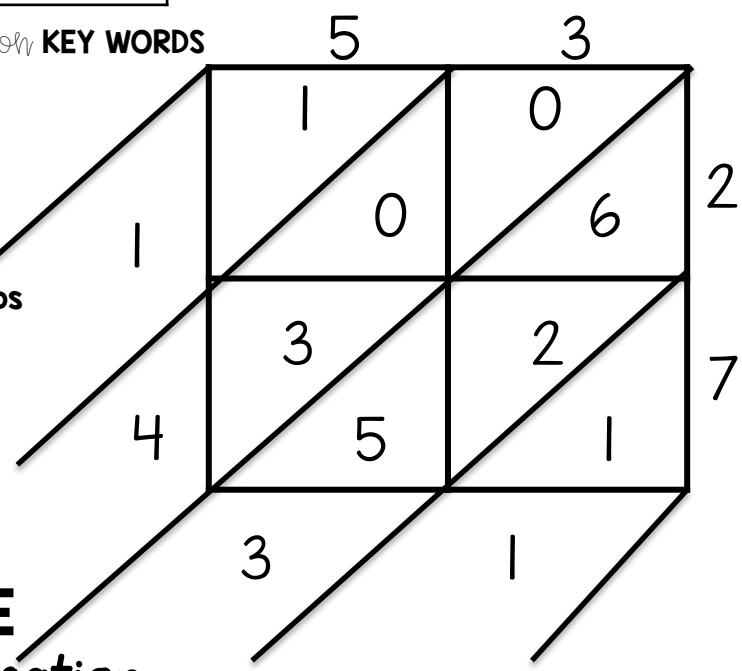
Multiplying Decimals

		~~2~~	
		5	3
	X	2	7
	3	7	1
1	0	6	0
1	4	3	1

multiplication KEY WORDS

- array
- product
- factor
- groups of
- multiple
- rows of
- times
- equal groups
- doubled
- tripled
- quadruple

LATTICE Multiplication



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DIVISION ANCHOR CHART

527 divided by 4 equals 131 R 3

DIVIDEND ÷ DIVISOR = QUOTIENT

Algorithm

		1	3	1	R	3
	4	5	2	7		
	-	4	↓	↓		
		1	2			
	-	1	2			
			0	7		
			-	4		
				3		

Partial Quotient

```
      23 R 2
4 | 9 4 | 10 (10x4)
   -4 0
     54 | 9 (9x4)
    -36
     18 | +4 (4x4)
    -16
      2 | 10 + 9 + 4 = 23
```

For this division problem, you can find 10 groups of 4 in 94. So, since 10 x 4 equals 40, you subtract 40 from the dividend. Next, you think about how many groups of 4 you can find in 54. There are 9 groups of 4, or 36 in 54. The difference of 36 and 54 is 18. Finally, you need to think about how many group of 4 are in 18. Since there are 4 groups of 4 in 18, there are 2 left over. There is a remainder of 2.

Division Box 168 ÷ 6

		2	8
6	1 -0 1	16 -12 4	48 -48 0

Area Model

868 ÷ 7=124

	100	10	10	4
7	868 -700 168	168 -70 98	98 -70 28	28 -28 0

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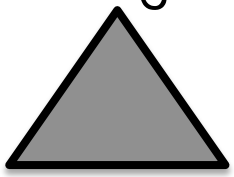
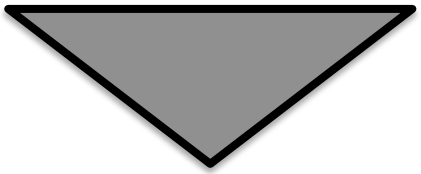
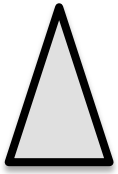
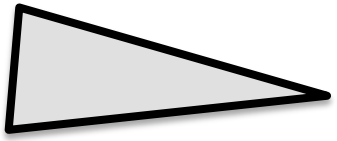
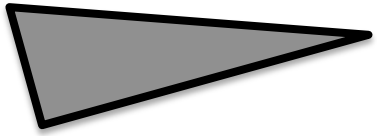
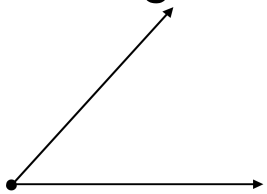
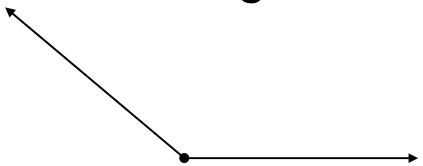
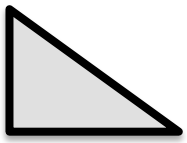
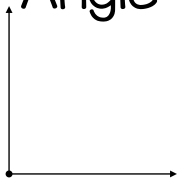
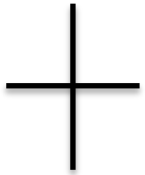
GEOMETRY: Triangle ANCHOR CHART

Equilateral Triangle 	<u>Equilateral Triangle</u> All sides are the same or equal.	Obtuse Triangle 	<u>Obtuse Triangle</u> One obtuse angle.
Isosceles Triangle 	<u>Isosceles Triangle</u> Two sides are the same or equal.	Acute Triangle 	<u>Acute Triangle</u> All angles within the triangle are acute.
Scalene Triangle 	<u>Scalene Triangle</u> NO sides are the same or equal.	Acute Angle 	Obtuse Angle 
Right Triangle 	<u>Right Triangle</u> One 90° angle or right angle.	Right Angle 	Perpendicular Lines  Parallel Lines

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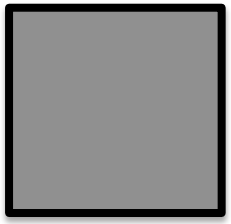
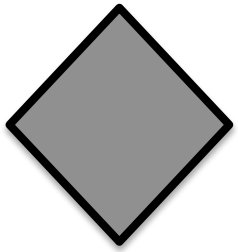
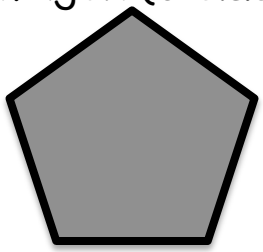
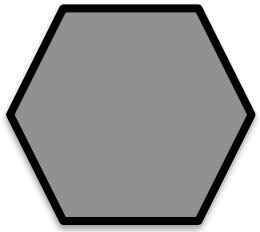
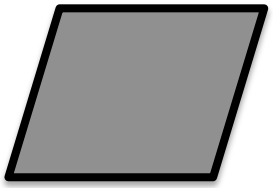
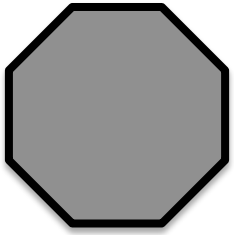
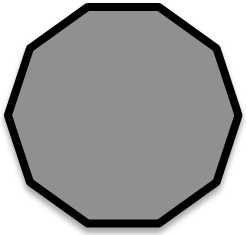
GEOMETRY: POLYGONS ANCHOR CHART

Parallelogram	<u>Parallelogram</u> *2 pairs parallel sides *a quadrilateral	Trapezoid	<u>Trapezoid</u> *1 pair of parallel sides *2 sides equal length
Square 	<u>Square</u> *4 <u>equal</u> sides *4 right angles *a rectangle *a quadrilateral *a rhombus *a parallelogram	Quadrilateral 	<u>Quadrilateral</u> *4 sided shape *a square *a rectangles *a parallelogram *a rhombus
Rectangle	<u>Rectangle</u> *4 right angles *a parallelogram *2 pairs of opposite sides have equal length	Pentagon (5 sides) 	Hexagon (6 sides) 
Rhombus 	<u>Rhombus</u> *parallelogram *4 sides equal length	Octagon (8 sides) 	Decagon (10 sides) 

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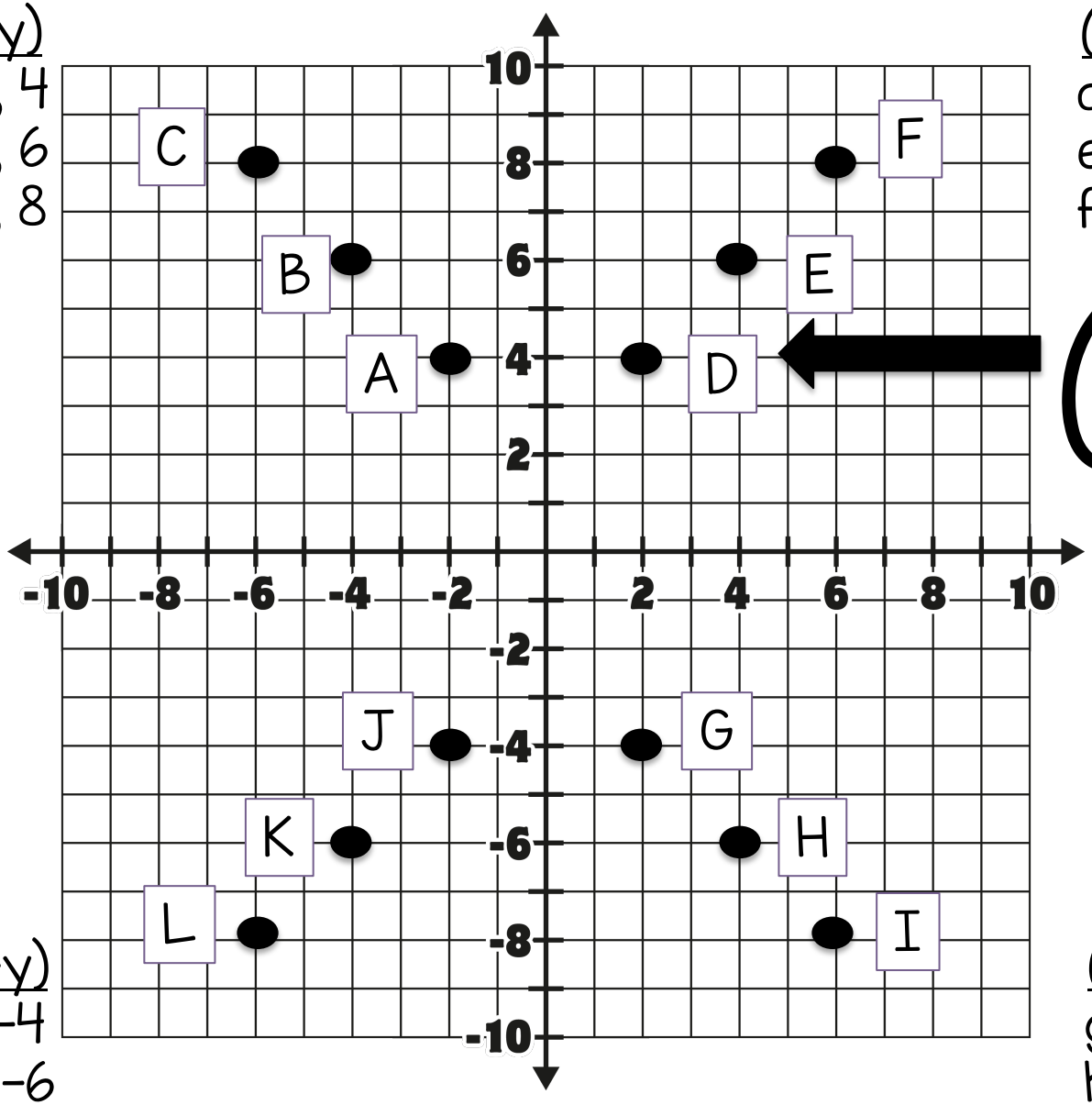
COORDINATE GRIDS ANCHOR CHART

(-x, y)
a -2, 4
b -4, 6
c -6, 8

(x, y)
d 2, 4
e 4, 6
f 6, 8

The 2 is the X coordinate and tells you how many units to move <u>left</u> or <u>right</u> on the X axis.



(2, 4)

X Axis (Horizontal)

The 4 is the Y coordinate and tells you how many units to move <u>up</u> or <u>down</u> on the Y axis.

(-x, -y)
j -2, -4
k -4, -6
l -6, -8

(x, -y)
g 2, -4
h 4, -6
i 6, -8

Y Axis (Vertical)

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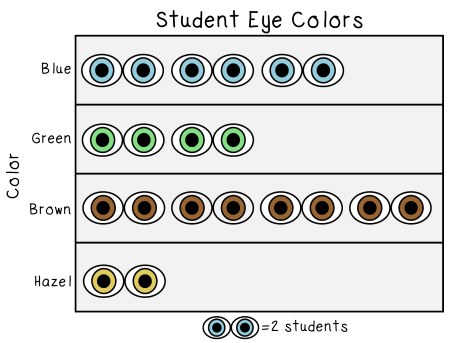
GRAPHING ANCHOR CHART



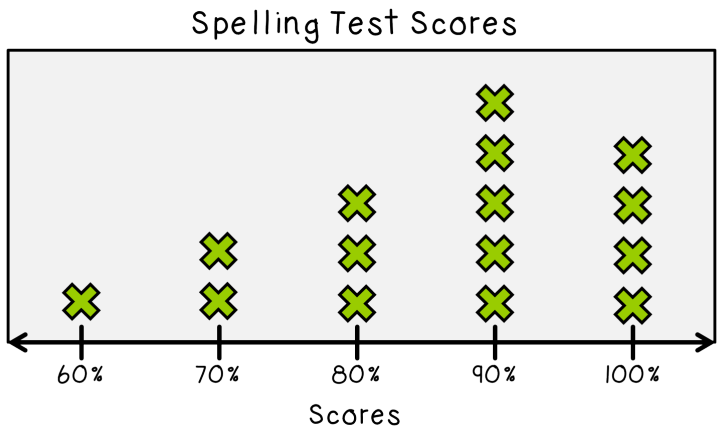
PICTOGRAPH

A pictoral symbol that represents data. Each pair of eyes on this graph represents one child.

TALLY CHART

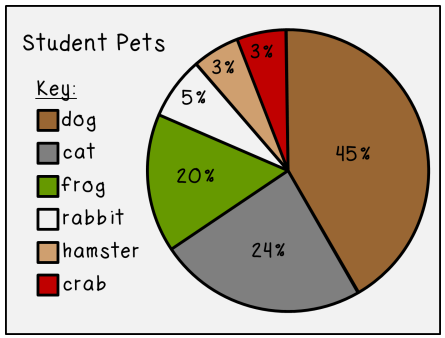
A tally chart displays tally marks to represent data. Usually, tally marks are recorded in groups of five, with the fifth tally mark diagonally crossing the others.

What did you eat for lunch?	
Sandwich	𝍸
Hot Dog	𝍷
Chicken	𝍸 𝍷
Pizza	𝍸



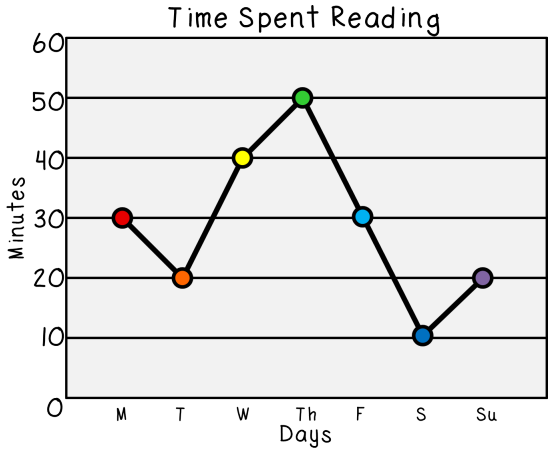
LINE PLOT

A line plot is a graph that displays x's to represent frequency or amount that the data occurs. This can be used to compare data and to find outliers.



CIRCLE GRAPH

A circle graph shows percentage of data out of 100. This graph is made by dividing a circle into sections to show a comparison of data.



LINE GRAPH

A line graph records data over time. The points are connected showing changes over time.

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PRIME FACTORIZATION ANCHOR CHART

Prime Number

A prime number has only 2 factors, 1 and itself.

Composite Number

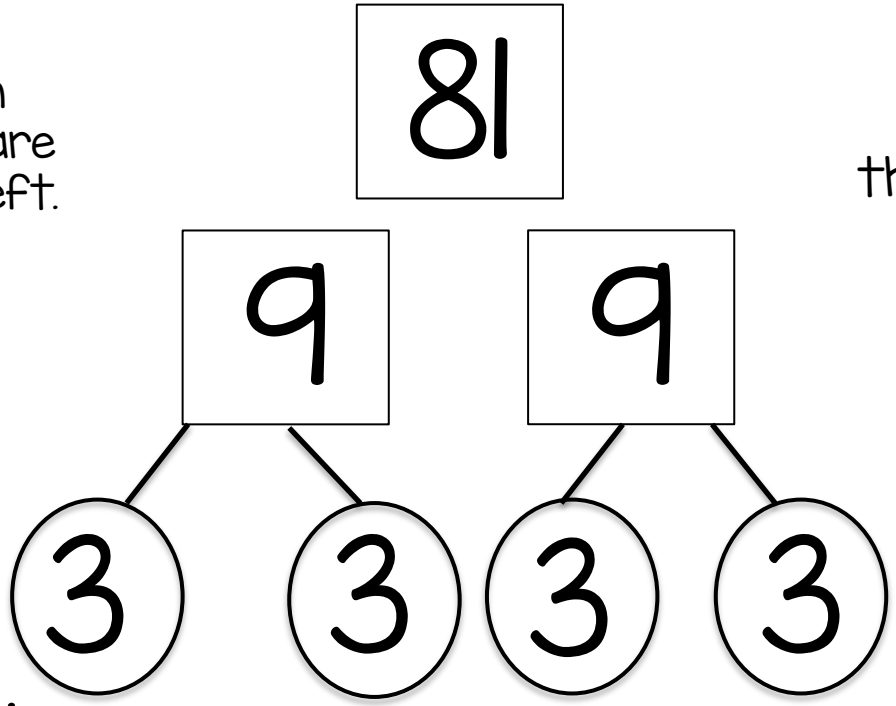
Composite numbers have more than 2 factors.

Prime Factorization Tree

Tip #1:
Keep breaking down numbers until there are only prime numbers left.

Tip #2:
Write your answer using exponents if there are more than one of the same number.

Tip #3:
Put squares around the composite numbers and circles around prime numbers.



Prime Factorization

$$3 \times 3 \times 3 \times 3 = 3^4$$

Exponent
This number sits on the shoulder of another number. It tells you how many times you will need to multiply that same number.

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Order of OPERATIONS anchor chart

Parentheses

Exponents

Multiplication

Division

Add

Subtract

example

$15-4^2\div(3+1)$

$15-4^2\div4$

$15-16\div4$

$15-4$

9

P (6+7) Parenthesis	E 5^3 Exponents
× M Multiply	÷ D Divide
+ A Add	− S Subtract

3n—

3(4)—

3x4—

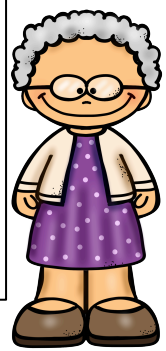
(6+7)

5^3

Parentheses
Solve the expressions that are inside the parentheses first.

Exponent
The exponent here is 3. It says to multiply the 5 three times
or 5 x 5 x 5

Minding Manners!
Multiplication and division mind their manners! Whichever comes first from left to right, do that first!



Please
Excuse
My
Dear
Aunt
Sally

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PROBLEM SOLVING ANCHOR CHART

C — CIRCLE THE NUMBERS

U — UNDERLINE THE QUESTION

B — BOX THE KEYWORDS

E — ELIMINATE INFORMATION NOT NEEDED

EVALUATE WHAT STEPS DO YOU NEED TO TAKE?

S — SOLVE AND SHOW YOUR WORK

There were 15,428 magazines distributed ~~by 210 trucks~~ to different stores. If there were 38 stores all together, how many magazines went to each store?

1. ***Circle*** the Numbers
The important numbers are 15,432 and 38.

2. ***Underline*** the Question
How many magazines went to each store?

3. ***Box*** the Keywords
The keywords are different since that tells me that I need to separate the magazines into different stores, all together because I know how many total stores there were, and each since there will be magazines sent to each store.

4. ***Eliminate*** and Evaluate
210 trucks can be eliminated since that information is not necessary to solve the problem. The large number of magazines needed to be divided to see how many magazines would go into each store.

5. ***Solve***
15,428 + 38 = 406

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CONVERSIONS ANCHOR CHART

CUSTOMARY MEASUREMENTS

Capacity

1 CUP (C.)= 8 FLUID OUNCES (OZ.)
1 PINT (PT.) = 2 C.
1 QUART (QT.) = 2 PT.
1 GALLON (G.) = 4 QT.

Weight

1 POUND (LB.)=16 OUNCES (OZ.)
1 TON (T.) = 2,000 LB.

Length

1 FOOT (FT.)=12 INCHES (IN.)
1 YARD (YD.) = 3 FT.
1 MILE = 5,280 FT.

METRIC MEASUREMENTS

Capacity

1 LITER (L.)=1,000 MILLILITERS (ML.)

Weight

1 GRAM (G.)=1,000 MILLIGRAM (MG.)
1,000 GRAMS (G.) = 1 KILOGRAM (KG.)

Length

1 METER (M.)=1,000 MILLIMETERS (MM.)
1 METER (M.)=100 CENTIMETERS (CM.)
1 CENTIMETER (CM.)=10 MILLIMETERS (MM.)
1,000 METER (M.)=1 KILOMETER (KM.)

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CONVERSIONS ANCHOR CHART

CUSTOMARY WEIGHT MEASUREMENTS

SMALLER **Divide** LARGER

÷ 16 ÷ 2,000

OUNCES POUNDS TONS

× 16 × 2,000

SMALLER **Multiply** LARGER

1 POUND (LB.)=16 OUNCES (OZ.)
1 TON (T.) = 2,000 pounds (LB.)

This truck seen to the left weighs about one ton.

A common pickup truck usually weighs around three tons.

An African elephant can weigh up to eight tons.

Full grown polar bears weigh one ton.

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CONVERSIONS ANCHOR CHART

CUSTOMARY CAPACITY MEASUREMENTS

SMALLER — Divide — LARGER

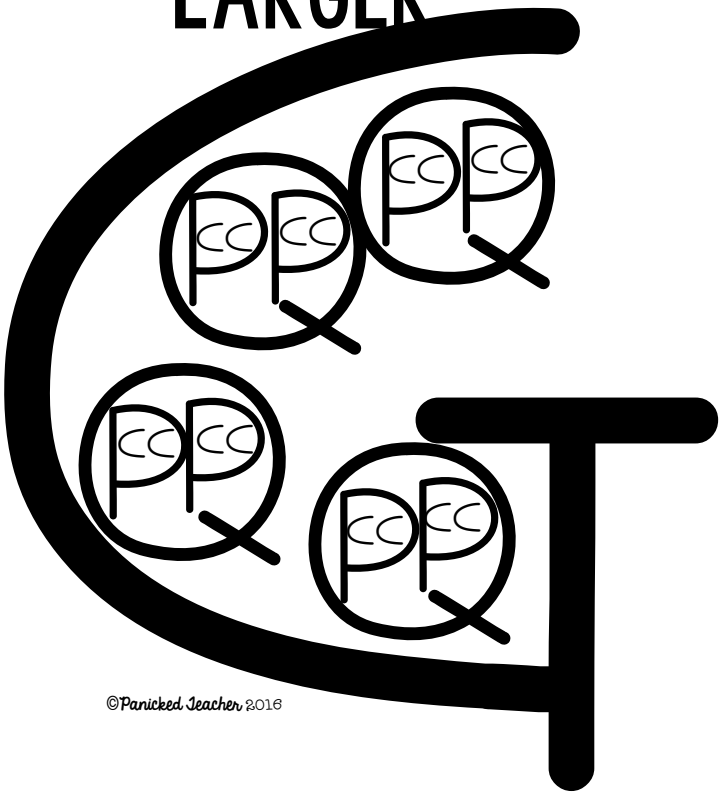
FLUID OUNCES ÷ 8 → CUPS ÷ 2 → PINTS ÷ 2 → QUARTS ÷ 4 → GALLONS

FLUID OUNCES ← × 8 CUPS ← × 2 PINTS ← × 2 QUARTS ← × 4 GALLONS

SMALLER — Multiply — LARGER

1 CUP (C.)= 8 FLUID OUNCES (FL OZ.)
1 PINT (PT.) = 2 cups (C.)
1 QUART (QT.) = 2 pints (PT.)
1 GALLON (G.) = 4 quarts (QT.)

GALLON															
QUART								QUART							
PINT				PINT				PINT				PINT			
CUP		CUP		CUP		CUP		CUP		CUP		CUP		CUP	
OZ	OZ	OZ	OZ	OZ	OZ	OZ	OZ	OZ	OZ	OZ	OZ	OZ	OZ	OZ	OZ



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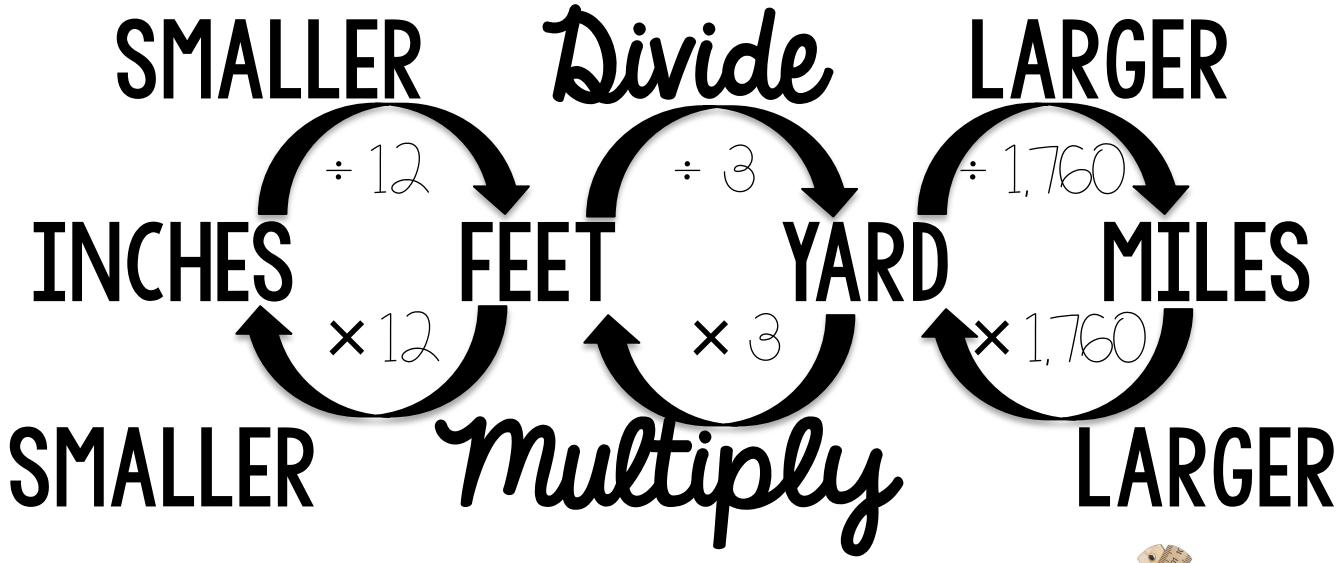
CONVERSIONS ANCHOR CHART

CUSTOMARY LENGTH MEASUREMENTS

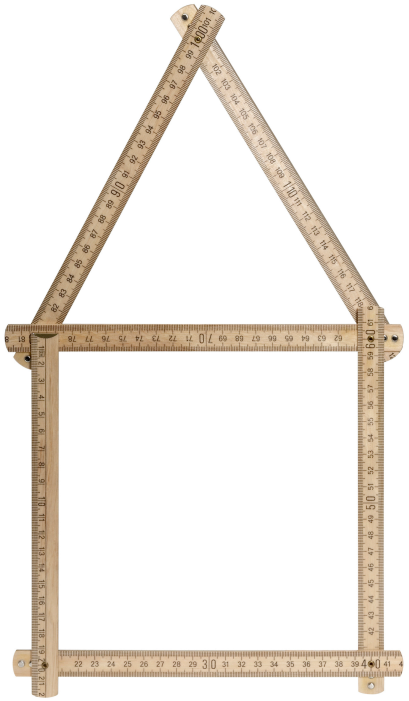


1 FOOT (FT.)=12 INCHES (IN.)

1 YARD (YD.) = 3 FEET (FT.)

1 MILE = 5,280 FEET (FT.)

YARD		
FEET	FEET	FEET
12 IN	12 IN	12 IN



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CONVERSIONS ANCHOR CHART

METRIC CAPACITY MEASUREMENTS

SMALLER **Divide** LARGER

÷ 2,000

MILLILITERS LITERS

× 2,000

SMALLER **Multiply** LARGER

Liters and milliliters are used to measure liquids such as soda and milk.

There are 2,000 milliliters in one liter of soda.

One gallon is equal to about 3.78 liters (almost 4 liters) of liquid.

There is one milliliter of liquid in a teaspoon of liquid.

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CONVERSIONS ANCHOR CHART

METRIC WEIGHT MEASUREMENTS

SMALLER **Divide** LARGER

÷ 1,000

MILLIGRAM GRAM KILOGRAM

× 1,000

SMALLER **Multiply** LARGER

There are 453 grams in one pound.

There are about 450 grams in one pound.

There are about 4,500 grams in this 10 pound bucket of oranges.

A paperclip, a thumbtack, and a piece of gum all weigh one gram.

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CONVERSIONS ANCHOR CHART

METRIC LENGTH MEASUREMENTS

SMALLER — *Divide* — LARGER

÷ 10 ÷ 100 ÷ 1,000

MILLIMETERS CENTIMETERS METERS KILOMETER

× 10 × 100 × 1,000

SMALLER — *Multiply* — LARGER

Did You Know...

A football field is about 91 meters long!

There are 25 millimeters in one inch.

A standard 12 inch ruler is 30.5 centimeters long.

There are 4,688 kilometers between New York and California!

There are 614 kilometers between Los Angeles and San Francisco!

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MATH STRATEGIES ANCHOR CHART

Make a Chart

MAKE A CHART TO VISUALIZE INFORMATION

What is your favorite ice cream flavor?	
Vanilla	4
Chocolate	6
Strawberry	3
Mint	5
Cookie Dough	10

Decomposing

BREAKING NUMBERS INTO HUNDREDS, TENS, AND ONES

237 + 125

200 + 100=300

30 + 20=50

7 + 5=12

300+50+12=362

Make a Table

x 3	
Input	Output
5	15
7	21
9	27

Making Models

25 x 4=100

25	25	25	25

Friendly NUMBERS

19 + 6

MAKE 19 A FRIENDLY NUMBER THAT IS EASIER TO VISUALIZE!

19 + 1 + 5

20 + 5=25

Making DOUBLES

20 + 24

ADD THE TWO DOUBLES TOGETHER

20+20=40

40+4=44

Place VALUE

46 + 36

BREAK APART 46 AND 36

40 + 6 AND 30 + 6

40+30=70

6+6=12

70+12=82

Compensation

152 + 148

MAKE THE NUMBERS AS CLOSE TO A FRIENDLY NUMBER THAT ARE EASIER TO ADD

152−2=150

148+2=150

150+150=300

300−2=298

298+2=300

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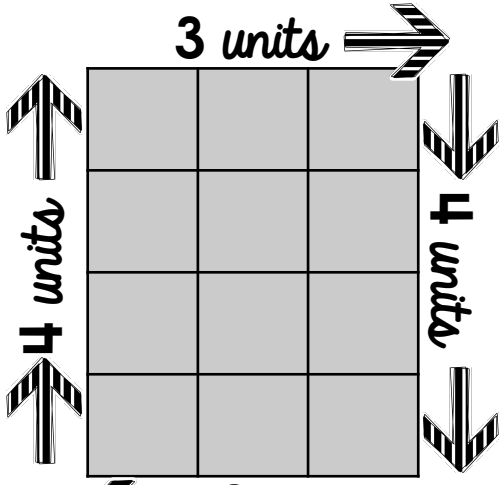
PERIMETER/AREA/VOLUME ANCHOR CHART

PERIMETER (S+S+S+S)

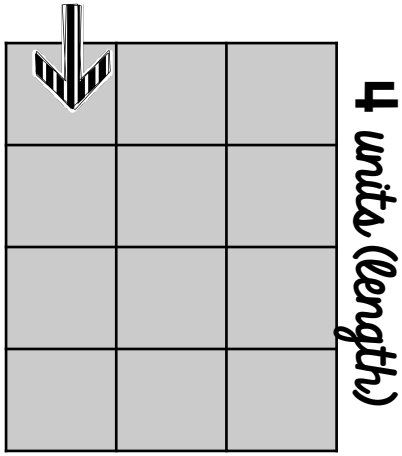


3 + 3 + 4 + 4= 14 units

Perimeter

The distance around the OUTSIDE of an object.

AREA (LxW)



3 x 4 = 12 units

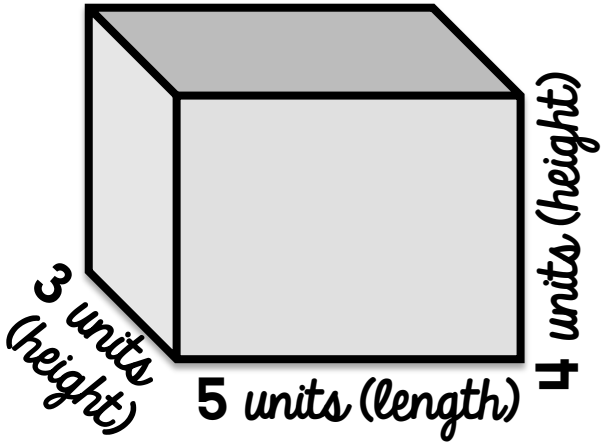
Area

The measurement of space INSIDE an object.

VOLUME (LxWxH)

Volume

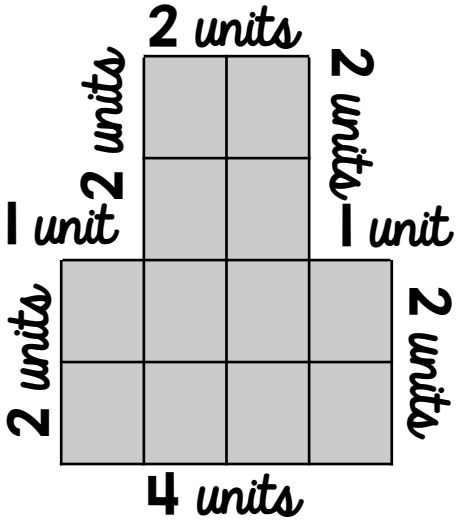
The measurement of space INSIDE a solid shape.



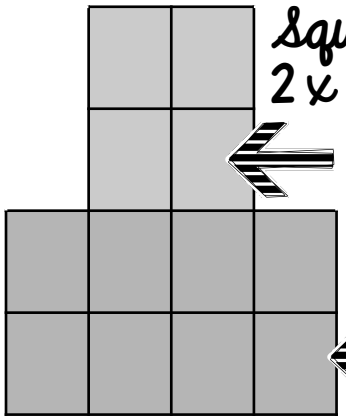
(3 x 5) x 4 = ?

15 x 4= 60 units^3

PERIMETER of an IRREGULAR SHAPE



AREA of an IRREGULAR SHAPE



Square #1
2 x 2 = 4 units

Square #2
4 x 2 = 8 units

8 + 4 = 12 units

Cubic Units

The answer will be in cubic units because you multiply units x units x units.

Your answer above

60 units^3

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