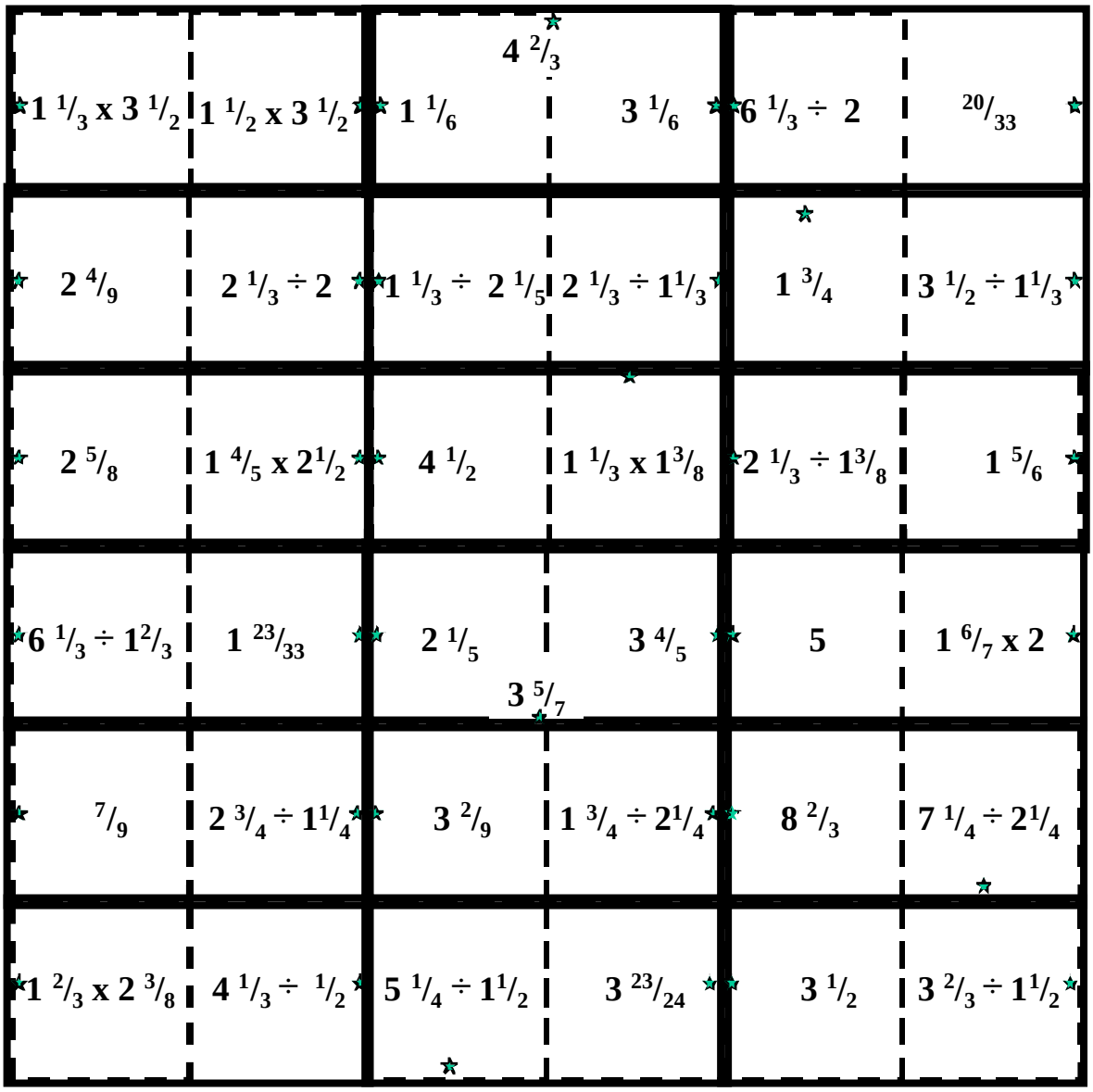
Dominos for Multiplication and Division of Mixed Numbers

Instructions: When matching dominos, match stars to stars.



Name_____Date_____

Decimal Dice

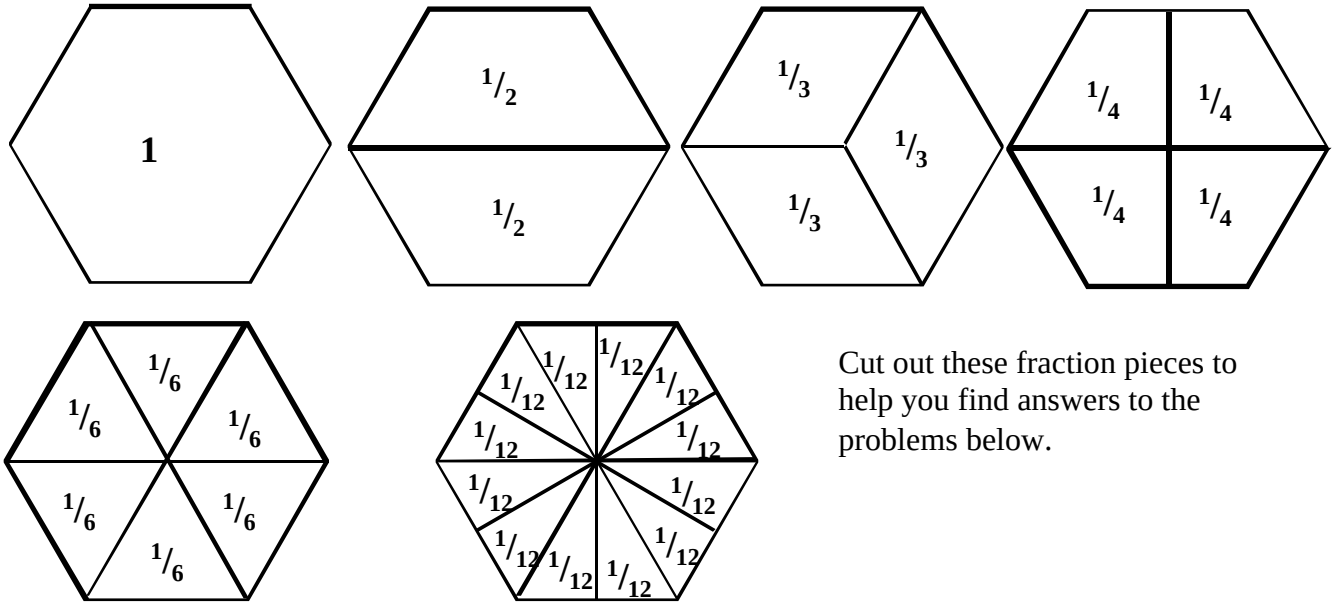
Targets Team 1			Targets Team 2		
Target	Problem	Value	Target	Problem	Value
0.1			0.1		
0.2			0.2		
1			1		
2			2		
10			10		
20			20		
100			100		
200			200		
BigBoy			BigBoy		

Addition and Subtraction of Fractions Square Puzzle

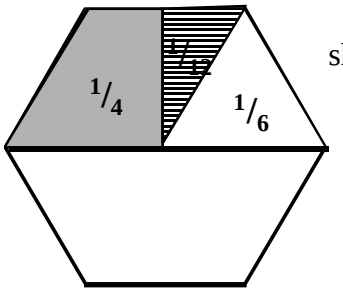
Square	Top	Left	Right	Bottom
Row 1, Col 1	$\frac{5}{12}$	$\frac{1}{2}$	$\frac{1}{6}$	$\frac{13}{15} - \frac{1}{3}$
Row 1, Col 2	$\frac{7}{10}$	$\frac{7}{9} - \frac{2}{3}$	$\frac{3}{8} - \frac{1}{3}$	$1\frac{1}{12}$
Row 1, Col 3	$\frac{4}{10}$	$\frac{1}{24}$	$\frac{1}{8} + \frac{1}{5}$	$\frac{1}{3} - \frac{1}{6}$
Row 1, Col 4	$\frac{3}{10}$	$\frac{13}{40}$	$\frac{4}{5}$	$\frac{5}{12} + \frac{3}{4}$
Row 2, Col 1	$\frac{8}{15}$	$\frac{2}{5}$	$\frac{3}{5} - \frac{2}{9}$	$\frac{11}{12} - \frac{2}{3}$
Row 2, Col 2	$\frac{5}{12} + \frac{2}{3}$	$\frac{17}{45}$	$\frac{19}{45}$	$\frac{5}{6} - \frac{1}{2}$
Row 2, Col 3	$\frac{1}{6}$	$\frac{1}{5} + \frac{2}{9}$	$\frac{3}{10} - \frac{1}{5}$	$\frac{2}{3}$
Row 2, Col 4	$1\frac{1}{6}$	$\frac{1}{10}$	$\frac{1}{5}$	$\frac{7}{8} - \frac{3}{4}$
Row 3, Col 1	$\frac{1}{4}$	$\frac{5}{6}$	$\frac{1}{8} + \frac{3}{5}$	$\frac{11}{12}$
Row 3, Col 2	$\frac{1}{3}$	$\frac{29}{40}$	$\frac{3}{5} - \frac{1}{3}$	$\frac{5}{12} - \frac{1}{3}$
Row 3, Col 3	$\frac{11}{12} - \frac{1}{4}$	$\frac{4}{15}$	$\frac{9}{10}$	$\frac{1}{2} + \frac{3}{4}$
Row 3, Col 4	$\frac{1}{8}$	$\frac{3}{10} + \frac{3}{5}$	$\frac{7}{9}$	$\frac{3}{4}$
Row 4, Col 1	$\frac{1}{6} + \frac{3}{4}$	$\frac{3}{8}$	$\frac{14}{15}$	$\frac{4}{9}$
Row 4, Col 2	$\frac{1}{12}$	$\frac{1}{3} + \frac{3}{5}$	$\frac{5}{9} - \frac{1}{3}$	$\frac{5}{8}$
Row 4, Col 3	$1\frac{1}{4}$	$\frac{2}{9}$	$\frac{3}{5} + \frac{11}{15}$	$\frac{7}{8}$
Row 4, Col 4	$\frac{7}{12} + \frac{1}{6}$	$1\frac{1}{3}$	$\frac{5}{9}$	$\frac{3}{5}$

Name_____Date_____

Fraction Blocks



Cut out these fraction pieces to help you find answers to the problems below.

I. This diagram 

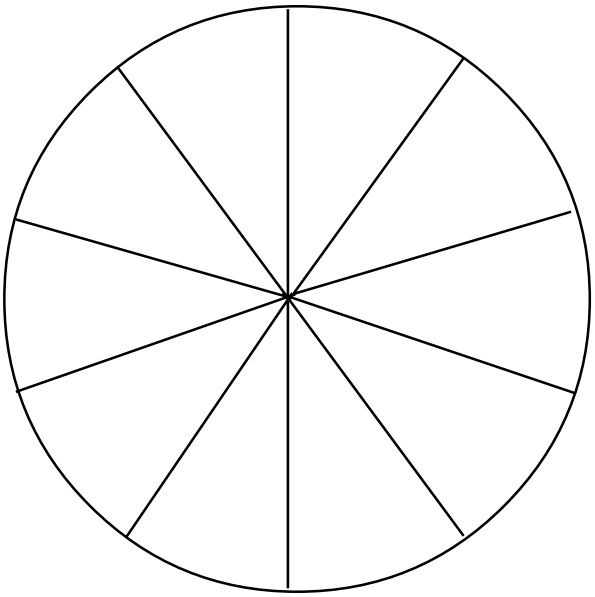
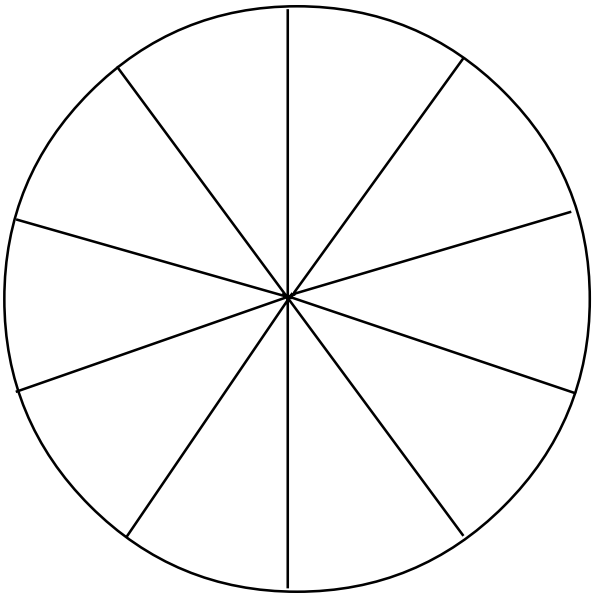
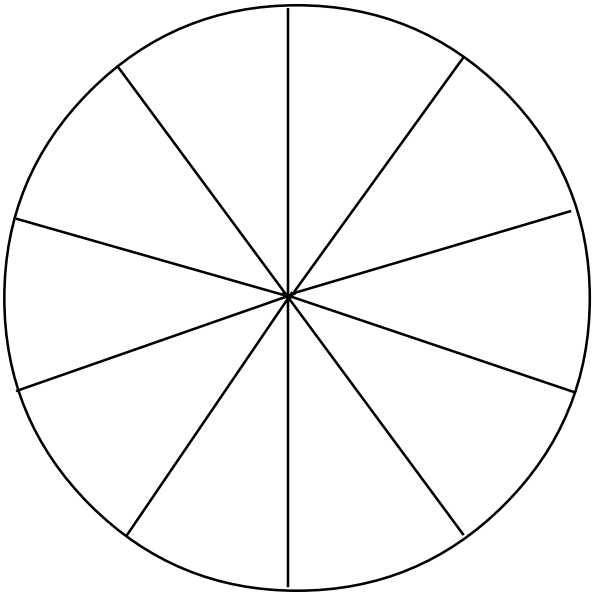
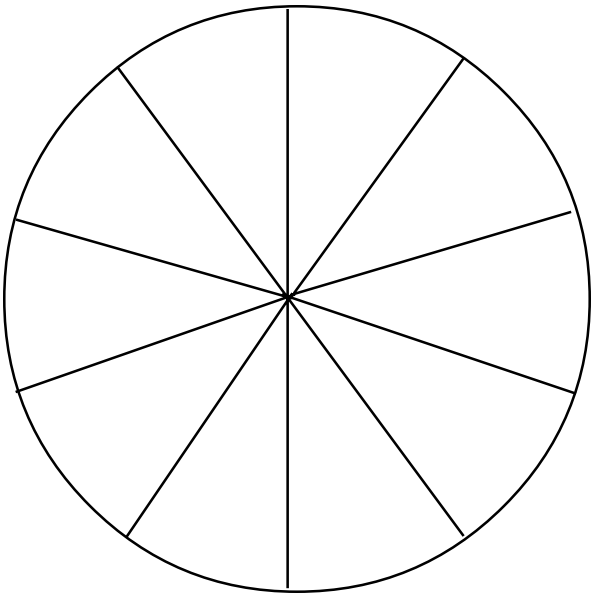
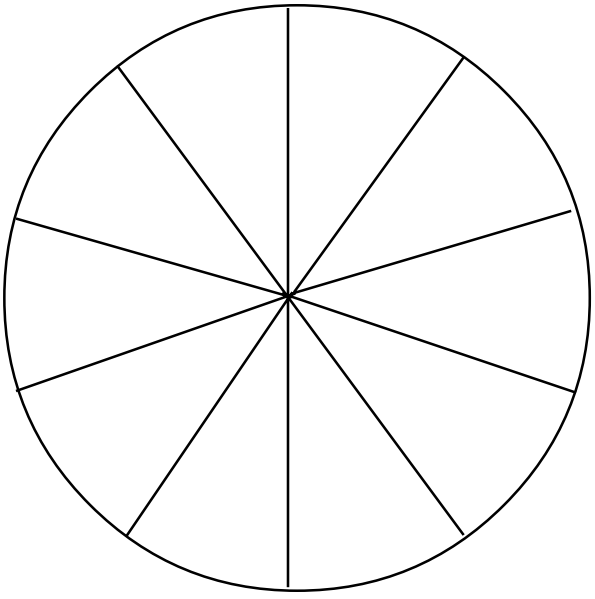
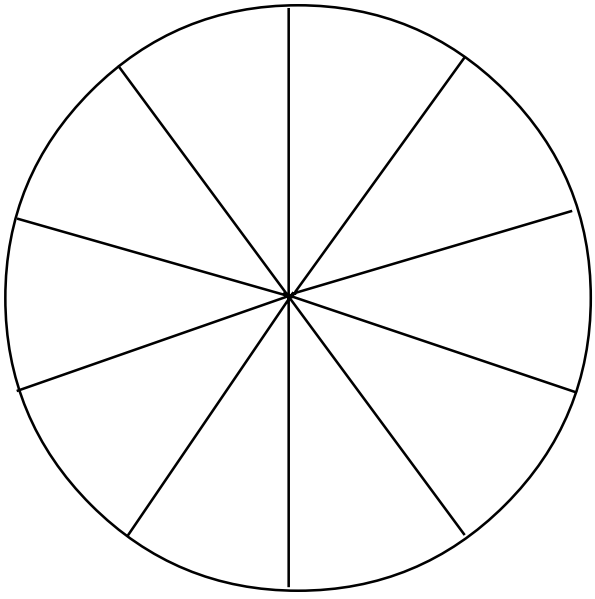
shows one way to make $^1/_2$. The number sentence is $^1/_{12} + {}^1/_6 + {}^1/_4 = {}^1/_2$.

Find as many ways as possible to make $^1/_2$. Write the number sentences.

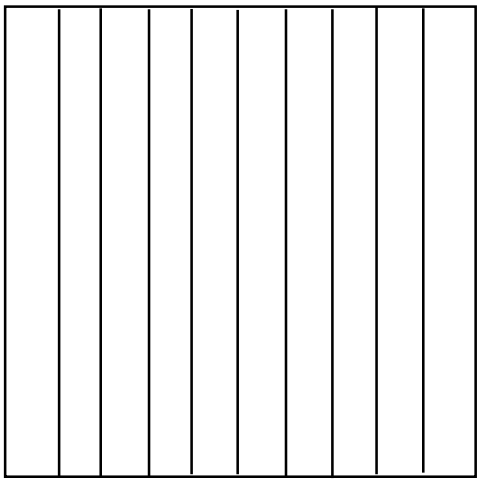
II. Use your pieces to solve these problems involving subtraction of fractions.
Complete the subtraction table below.

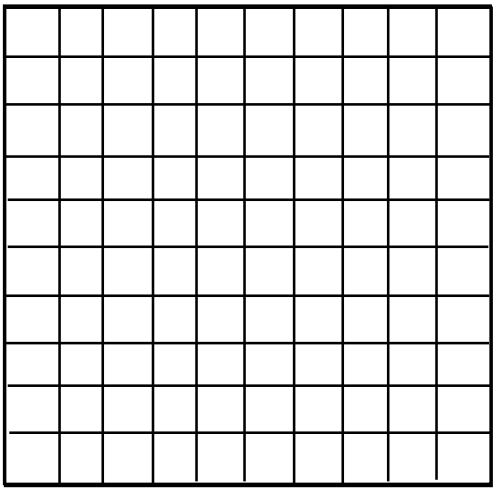
-	1	1/2	1/3	1/4	1/6	1/12
1						
1/2						
1/3						
1/4						
1/6						
1/12						

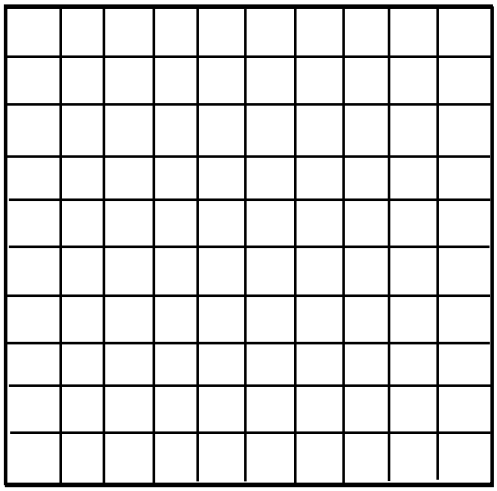
Tenths Recording Sheet

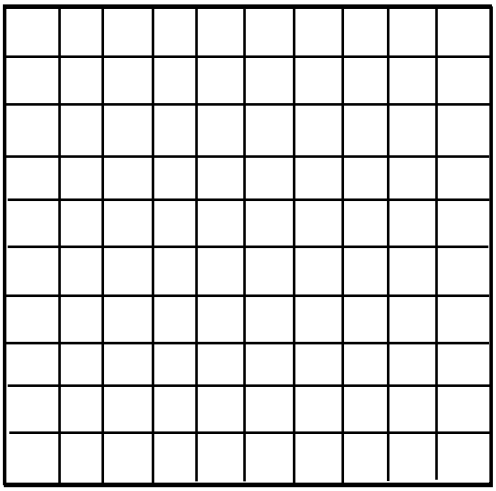







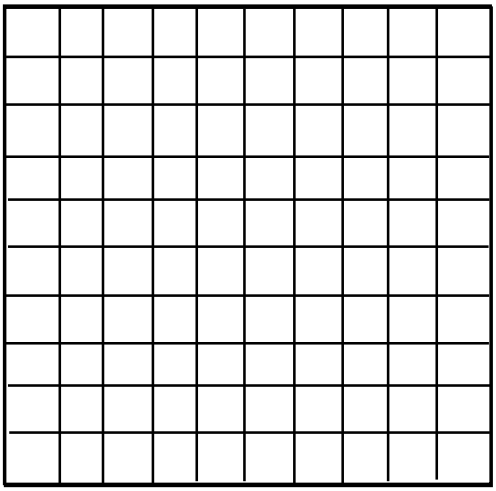
Tenths and Hundredths Recording Sheet

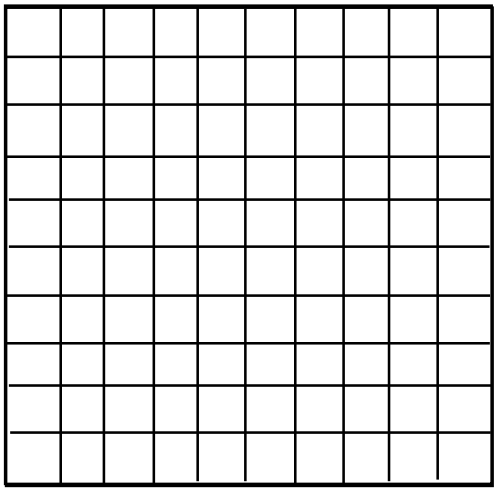












Name_____Date_____

Recipe Workout

Complete the charts to reduce or increase the number of servings.

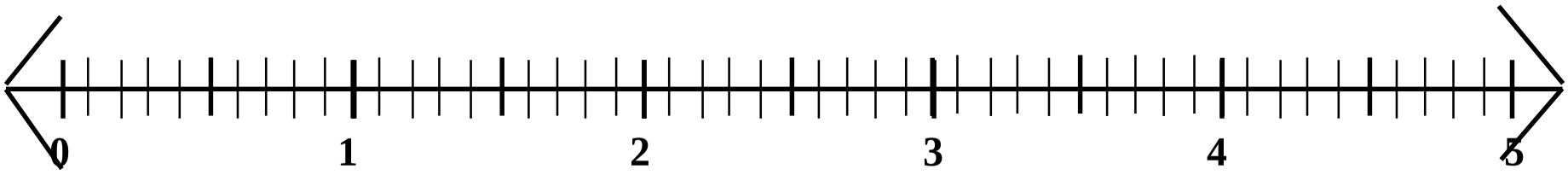
Chicken and Tortilla Casserole

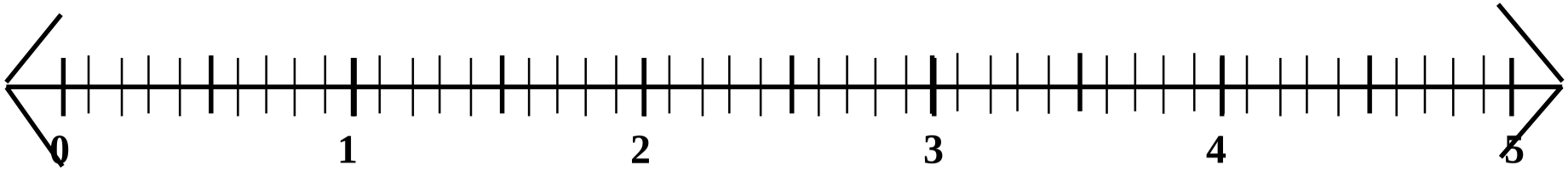
Number of Servings	8	16	4	20	28
Number of boneless chicken breast halves	8				
Jars of salsa verde	1				
Cups of light sour cream	1				
Cups of half and half	½				
Corn tortillas	2				
Cups of shredded cheddar cheese	4				
Cups of grated parmesan cheese	⅓				

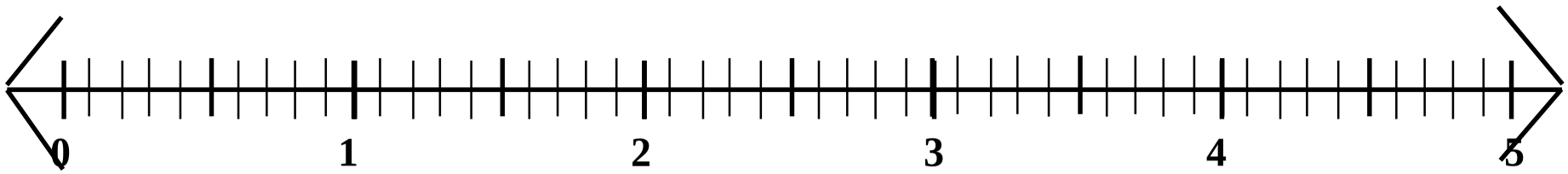
Chocolate Chip Cookies					
Dozens	5	2.5	15	7.5	12.5
Sticks of Butter	2				
Cups of granulated sugar	¾				
Cups of brown sugar	¾				
Eggs	2				
Teaspoons of vanilla	1				
Teaspoons of salt	½				
Teaspoons of baking soda	1				
Cups of flour	2¼				
Cups of chocolate chips	2				

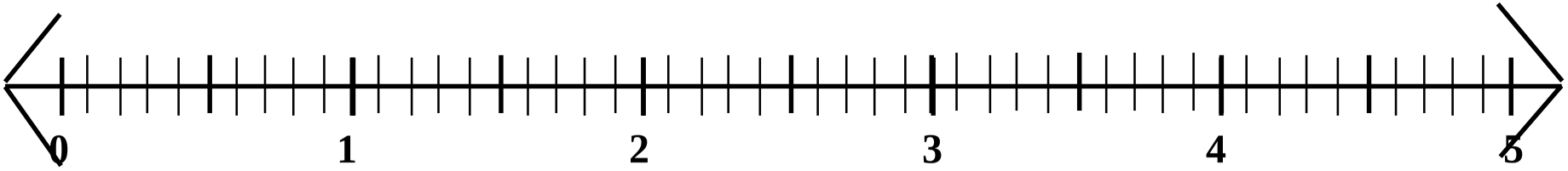
Number Line Math

Name_____

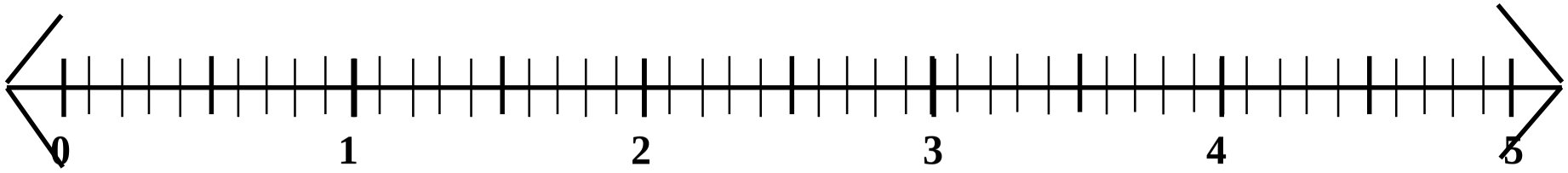


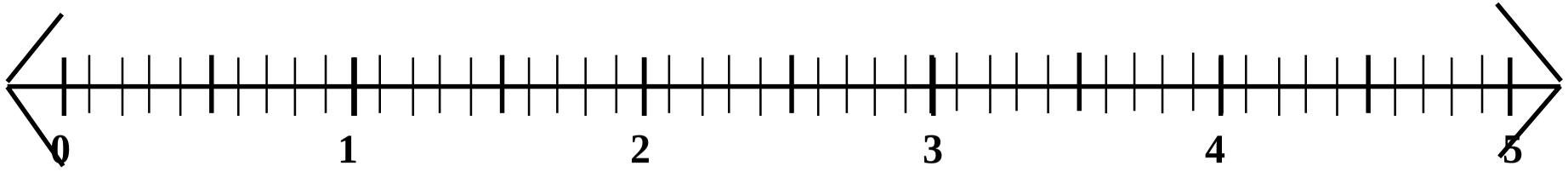


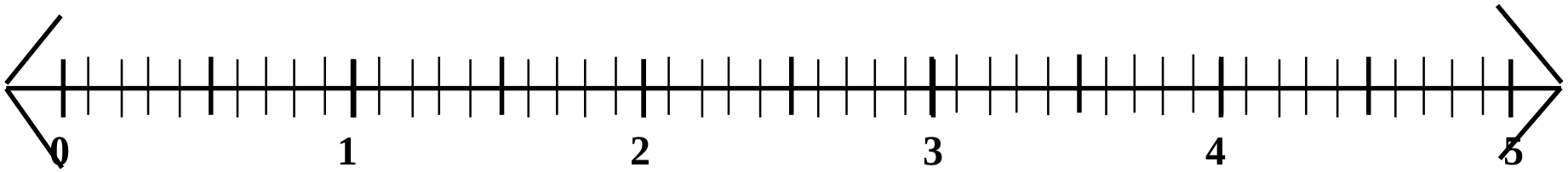


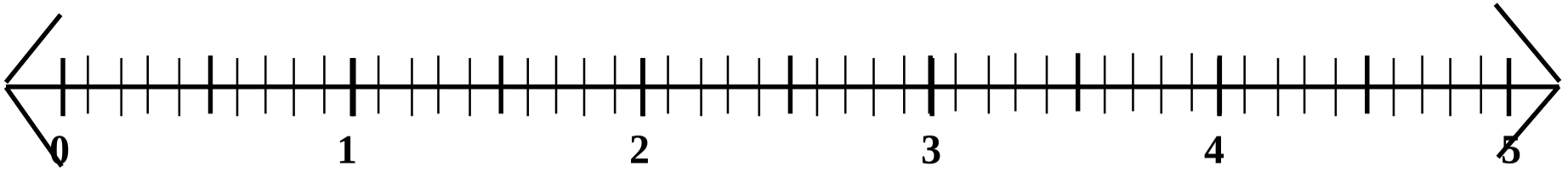


Number Line Math **Name**_____

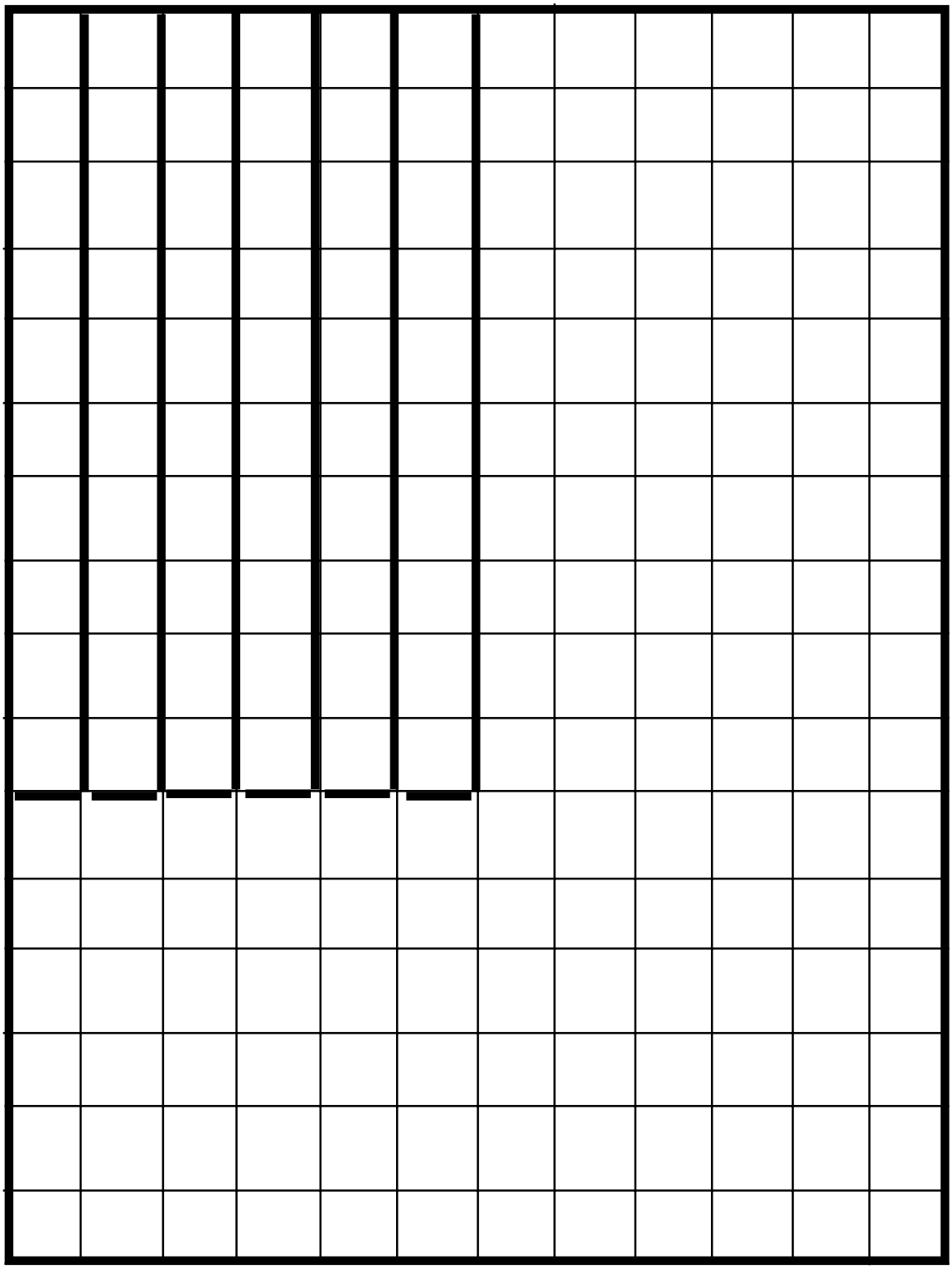








0.2	**3.6**
1.2	**0.3**
2.1	**1.5**
0.8	**1.9**
3.2	**2.6**



Problem Discussion Cards

Problem 1

Ralph and his brother are at a carnival. They separate from each other at the ferris wheel at 1:00 pm, and they agree that they will each check back at the ferris wheel from time to time to see whether the other is ready to leave. Ralph checks the ferris wheel every 15 minutes, and his brother, Joe, checks in every 24 minutes. At what time will they meet at the ferris wheel again?

Would it have been better if Joe had checked in every 25 minutes? When would they have met again? Explain.

Problem 2

The managers of a refreshment stand are going to buy hotdogs and buns. The buns come in packages of 24 or 30. The hotdogs come in packages of 18 or 40.

The owners want to buy enough of each so that there is exactly one bun for every hotdog with none left over. They have to order enough to make at least 400 hotdogs.

No matter which size package they buy, the buns cost ten cents each and the hotdogs cost 25 cents each. Which size package and how many of each should they buy to meet all their conditions?

Problem 3

Susan and Jim collect baseball cards. Susan has her cards in an album with two rows of five cards on each page. Jim's album has three rows of four cards on each page. They have the same number of cards, and neither of them has any empty spaces on a page. They have at least 400 cards. What is the smallest number of pages possible in each book?

Problem 4

A set of 100 open lockers is numbered from 1-100. Sarah comes by and closes all the lockers with even numbers. Then, Sarah walks past the lockers again and checks the ones numbered with multiples of 3. If the locker is closed, she opens it, if it is open, she closes it. She repeats this with the multiples of 4, 5, 6, … and so on to 100. When she has finished, which lockers will be open? Explain how you know.

Tax Collector

The object of this activity is to amass a greater sum than the tax collector's. Each student needs a gameboard and a set of number tiles called **Paychecks**. For each Paycheck selected, the student pays taxes in the form of the factors of the Paycheck. If no factors are available, the tax collector gets the whole Paycheck! Action continues until all number tiles or Paychecks are used. The tiles for the student and the tax collector are totaled and the greater sum wins.
Example: Student selects 10 and pays 1, 2, and 5 in taxes. Student selects 9 and pays 3 in taxes (1 is used). Student selects 6 and the tax collector gets it since 1, 2 and 3 are used. Play proceeds until all paychecks are gone.

Taxpayer	Tax Collector
	 **Pay here!!**
Totals	
Round 1: ----------	----------
Round 2: ----------	----------
Round 3: ----------	----------
Round 4: ----------	----------

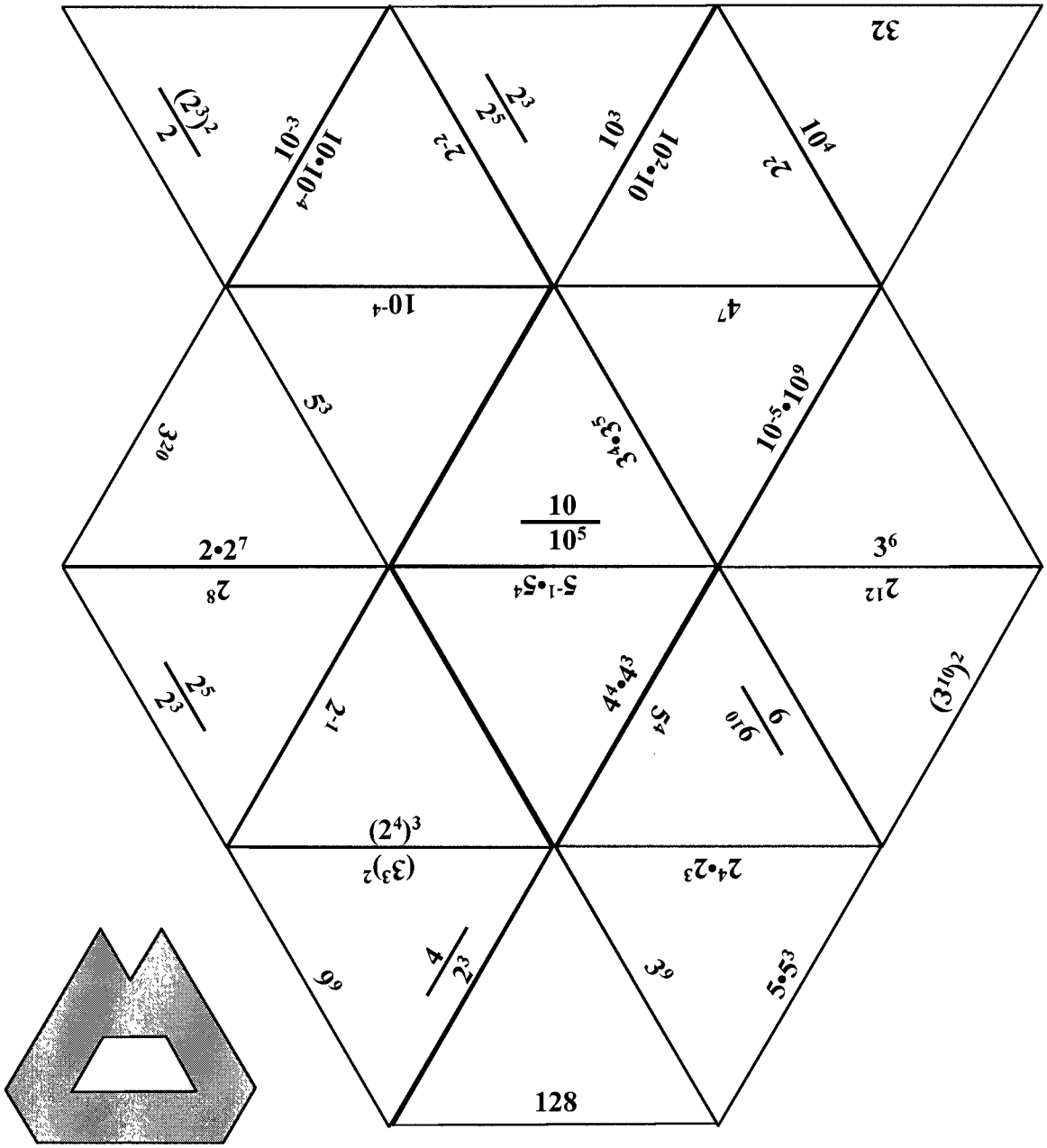
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

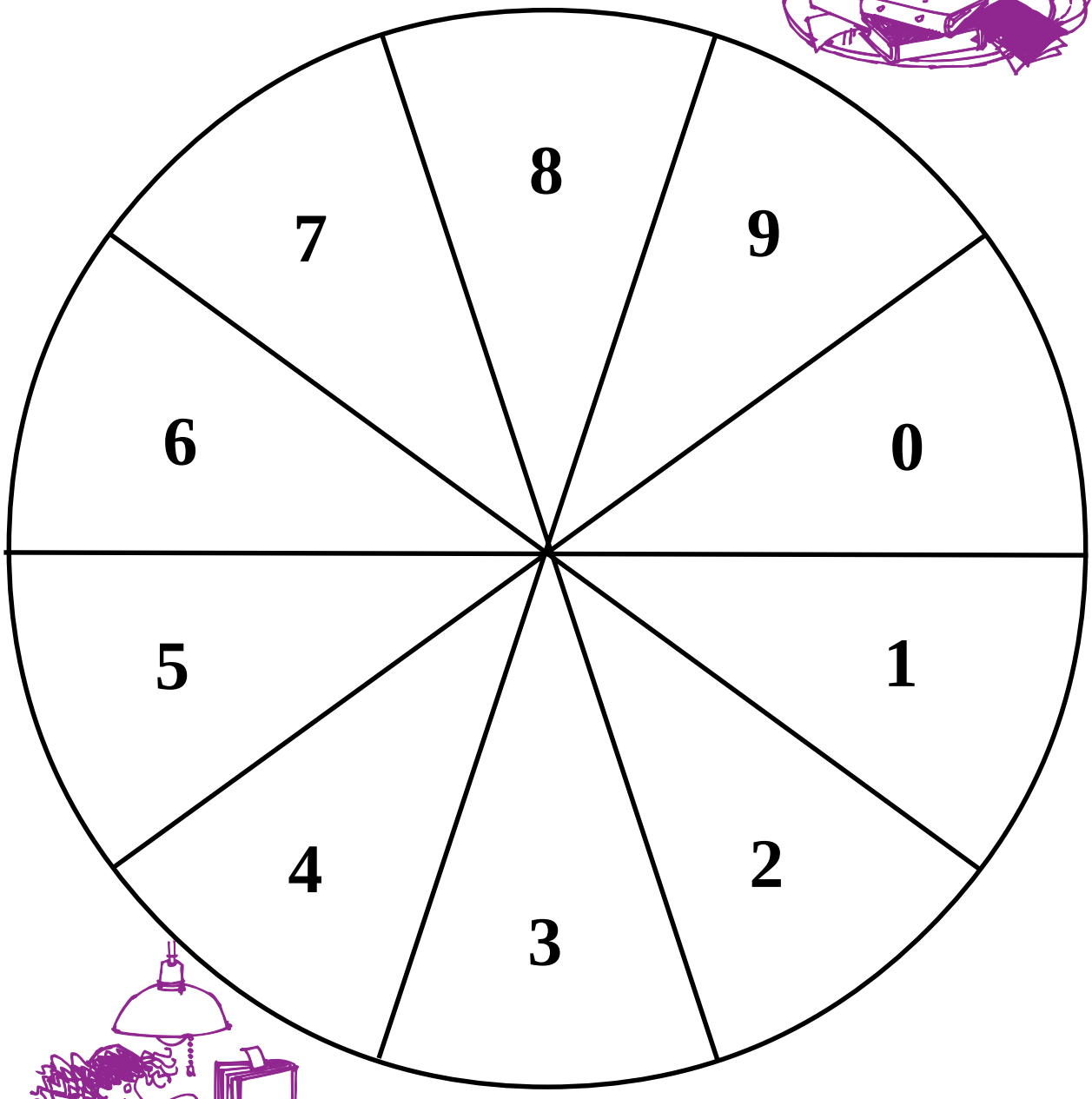
Rules of Exponents Triangle Puzzle

Cut the triangles apart. Reassemble the puzzle
so that touching edges have equivalent expressions.
The result should be the shape shown in miniature below.



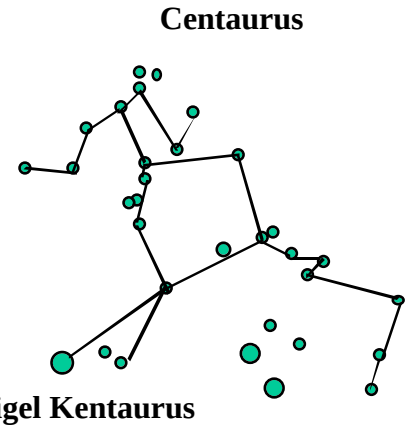
$3x^2$	$n^3 - n^2$	n^2
$\frac{n^4}{5}$	$a^2 - a$	$2x^2 + 1$
$x^2 + x$	$x^2 + 4$	$\frac{r^2 + 5}{2}$
$\frac{h^3 + h^2}{4}$	$w^3 + 8$	x^4
$5x^3$	$2x^2 + 10$	x^3
$-2x^2$	$2m^2 + 4.9$	$n^3 - 0.9$

EXPONENT EXPERTS



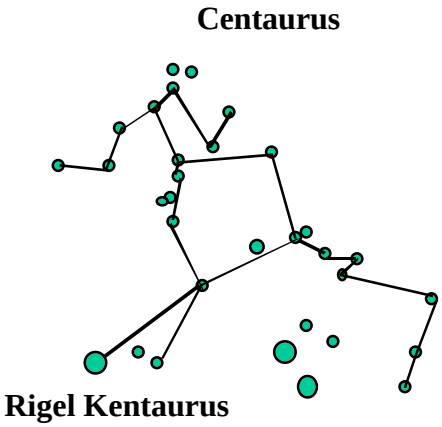
Kronos wants to travel from Rigel Kentaurus to Earth.

The distance is 4.3 light years.

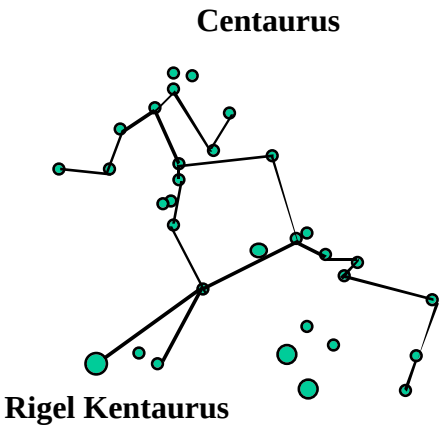


A light year is 5.9×10^{12} miles.

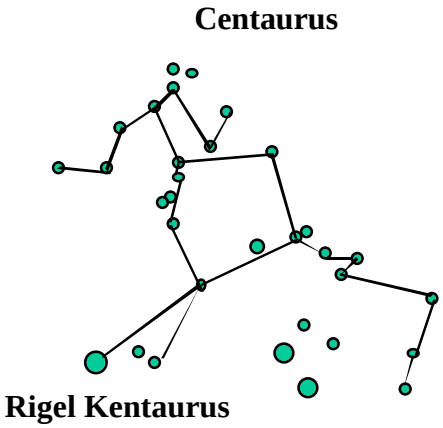
This is the distance light travels in one year.



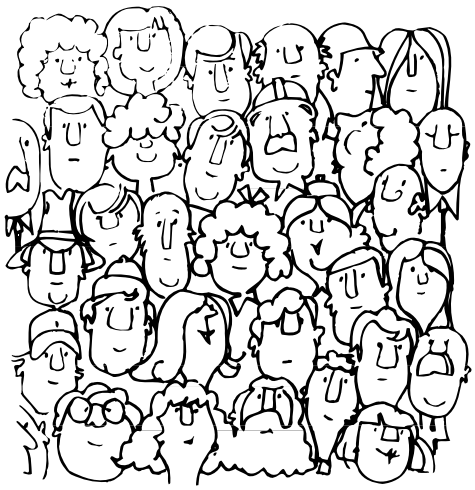
Kronos can travel at 1,000,000 miles per hour.



If he is 500 years old when he leaves Rigel Kentaurus, how old will he be when he reaches Earth?



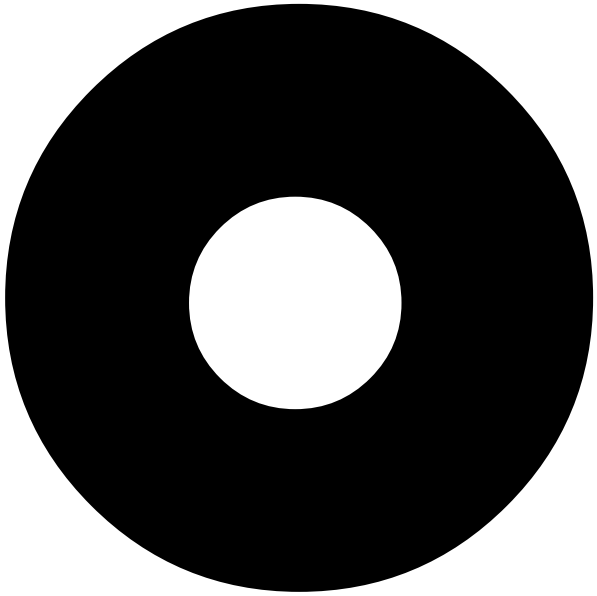
There are 2.6×10^8 people in the USA.

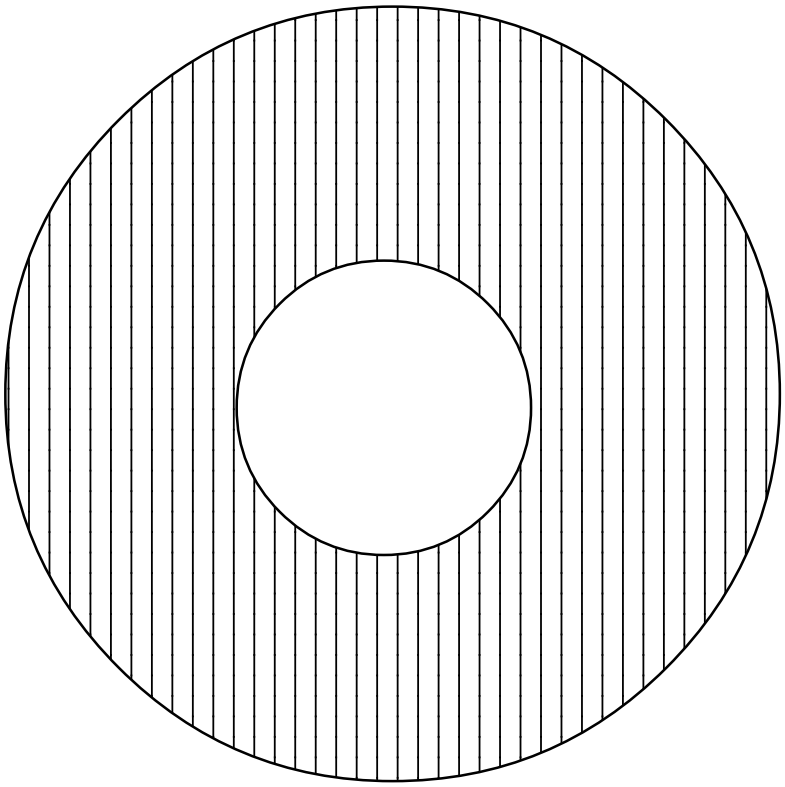


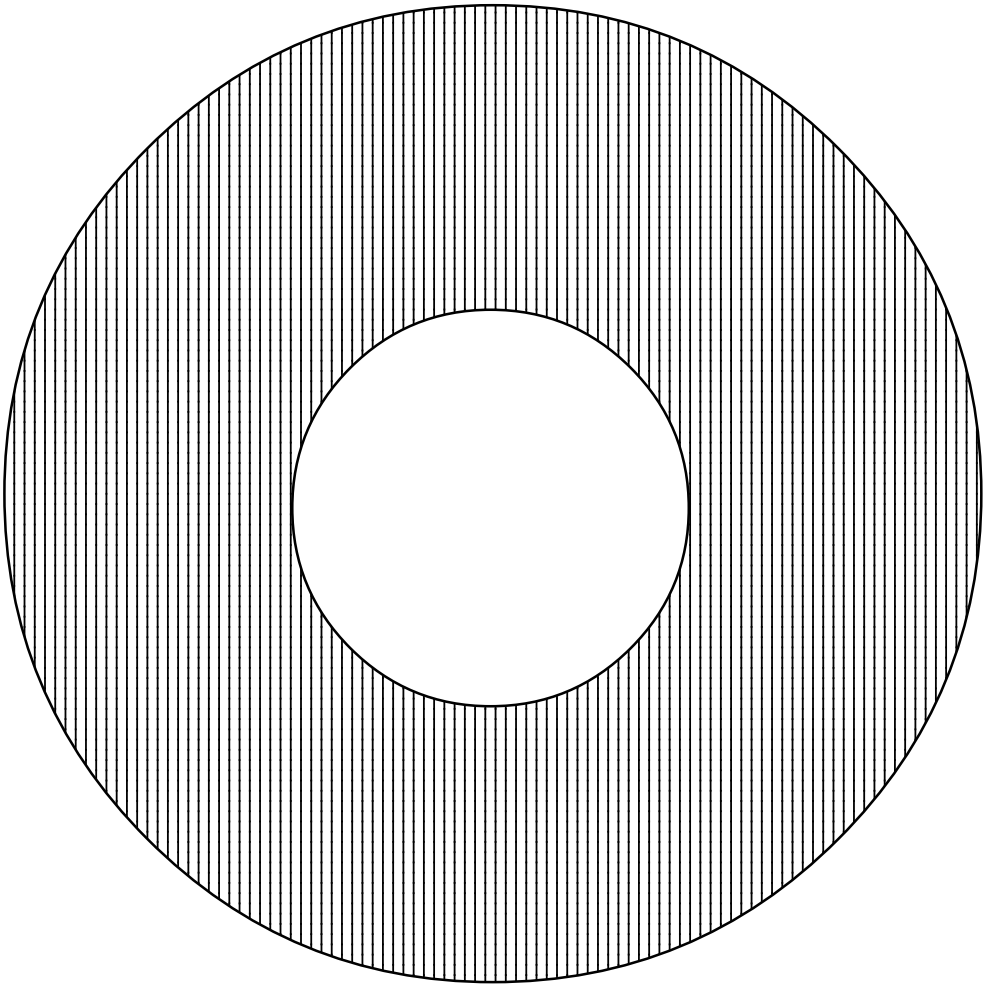
The average amount of soft drinks consumed per person in the United States is 44.1 gallons.

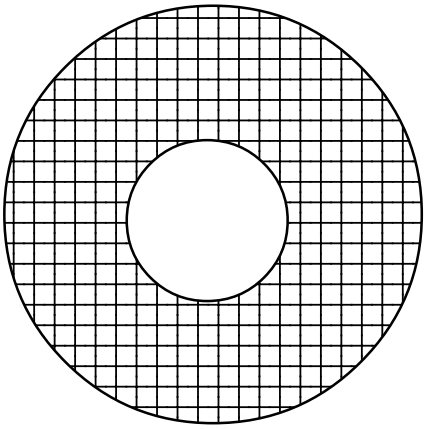
China has 1.3×10^9 people.

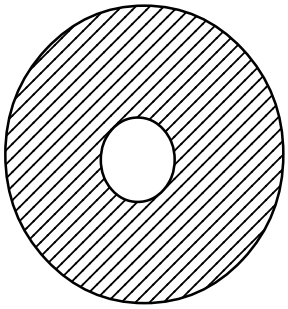
If we gave our yearly consumption of soft drinks to China, how much would there be for each person?

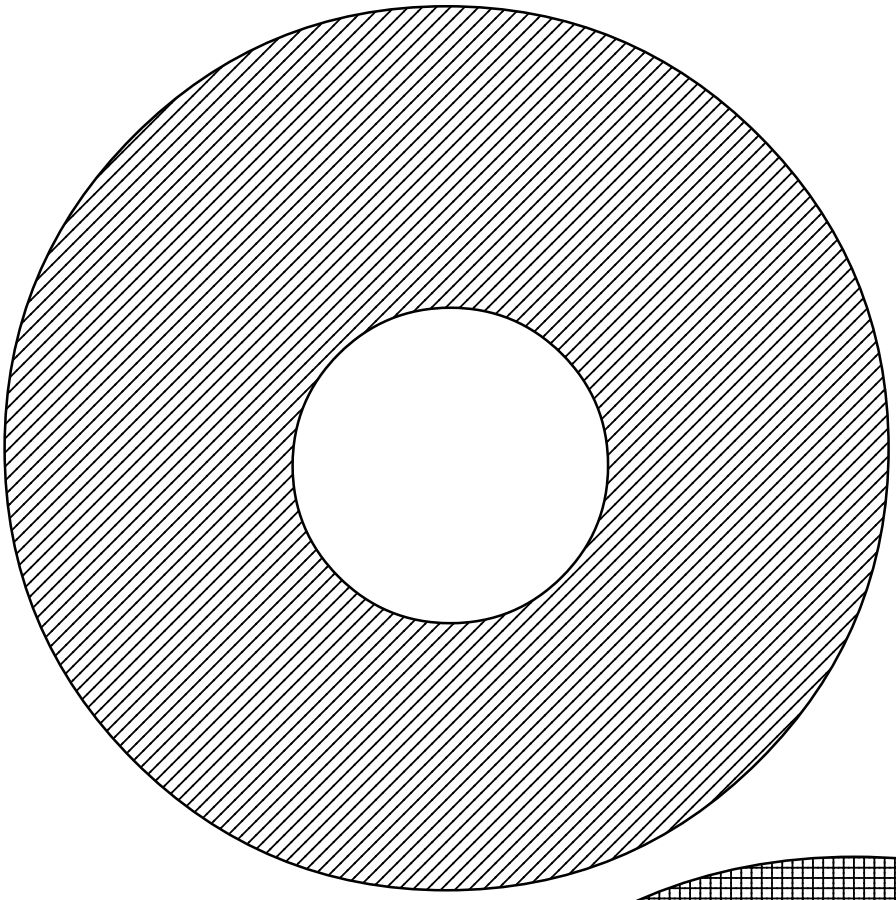


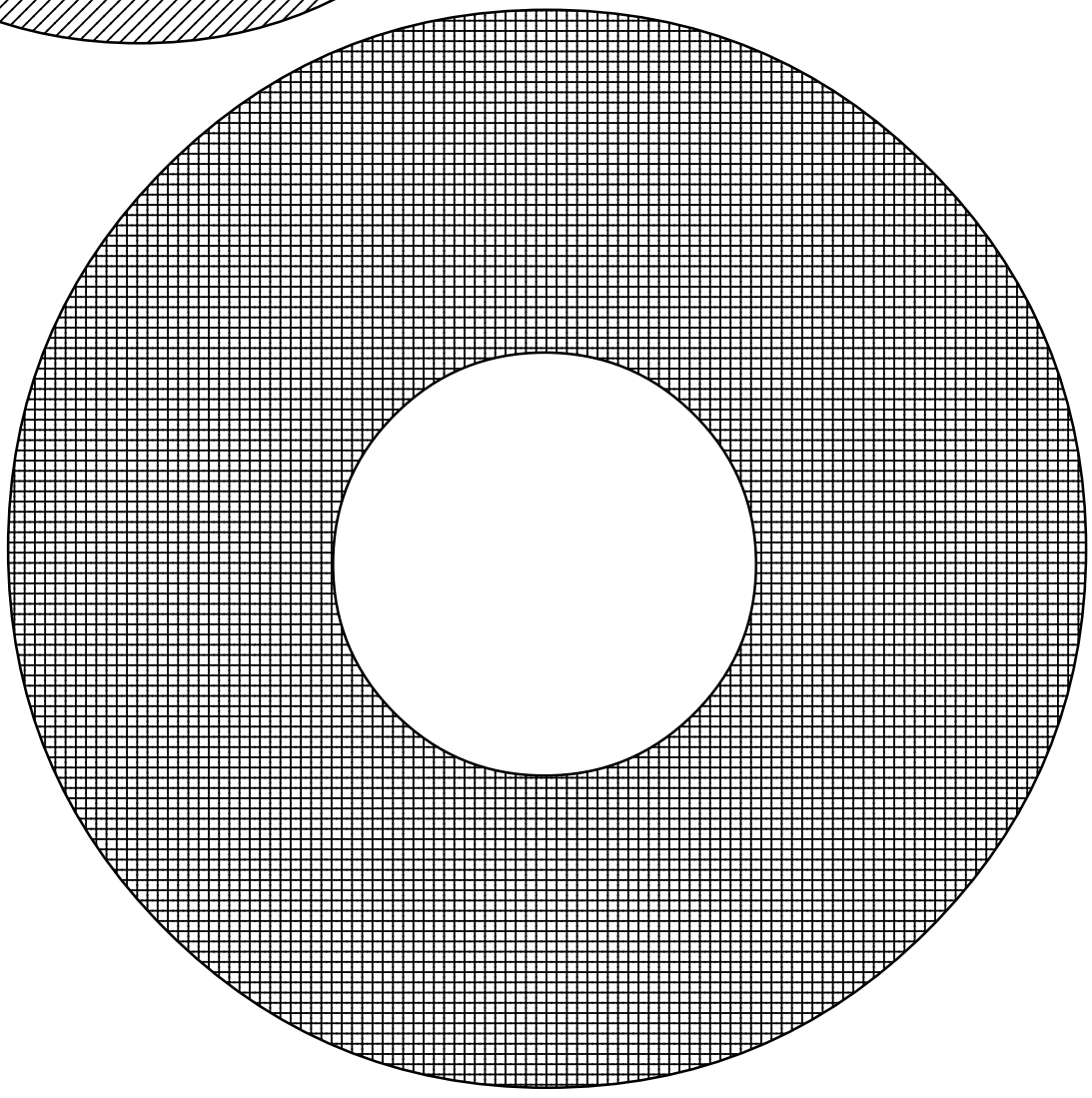






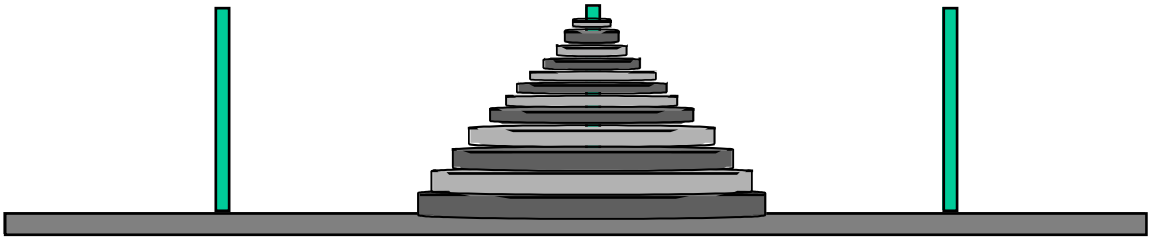






Name_____ Date_____

Tower of Hanoi



There is an ancient legend that in the great tower of Hanoi there stand three diamond spindles. On the middle one there is a stack of 64 golden disks of different sizes, each one smaller than the one below it. Monks in the temple have the task of moving the disks from one spindle to another, but they can move only one disk at a time, and they can never place a larger disk on top of a smaller one. The legend says that when this task is complete, the temple will disappear in a clap of thunder and the world will end. If the monks are very efficient and move these disks in the quickest way possible with each move lasting only one second, how long do we have until the world ends?

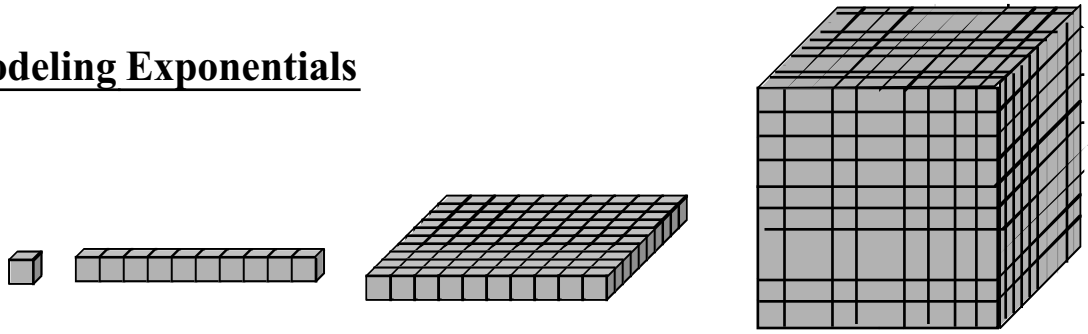
To find out how long we have until the world ends, start with a smaller problem and search for a pattern. If there was only one disk, how many moves would it take to transfer that? What if there were only two disks? Fill in the table below.

Number of disks	Minimum number of moves
1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
7	_____

Can you find a pattern? According to the legend, how long do we have until the world ends?

Name_____Date_____

Modeling Exponentials



1. The figures above represent Base-10 blocks. The smallest one is a single block. The long block is made of ten smaller blocks. The flat block is ten rows of ten or 100 small blocks. How many small blocks are in the big cube? _____

A manufacturer makes these types of blocks, but not always with ten on a side. When orders come in, his order blank looks like this with x representing the length of the long block.

x	x	x^2	x^3	**Cost**
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
10	_____	_____	_____	_____

This way, buyers can choose the size of block they want, and how many of each shape they need.

Each single block costs $0.01.

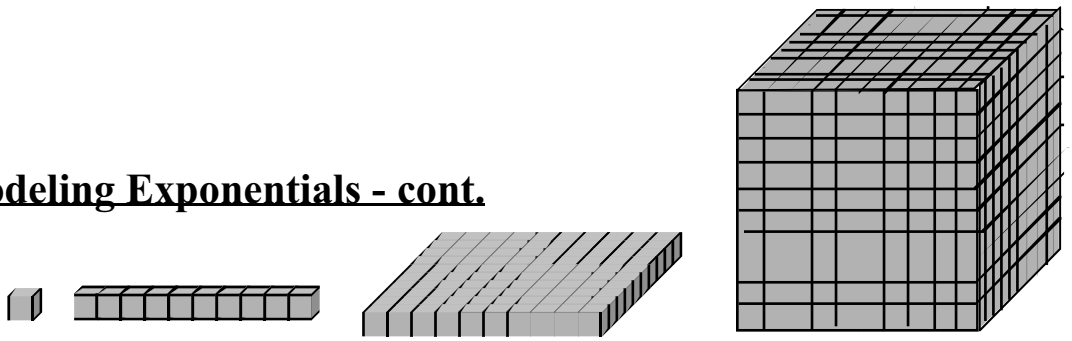
2. If $x = 2$, sketch the different blocks below:

Single Long = x Flat = x^2 Big Cube = x^3.

3. What will be the cost of a long block and a flat ($x + x^2$)?

4. Will the cost of $x + x^2 = x^3$? Explain.

Modeling Exponentials - cont.



5. If $x = 3$, find the cost of each type of block.

Single Long = x Flat = x^2 Big Cube = x^3.

6. What will be the cost of a two long blocks? ($x + x$ or $2x$)

7. Will the cost of $x + x = x^2$? Explain.

8. When $x = 4$, find the cost of $3x^2 + 2x^3$.

9. When $x = 5$, find the cost of $10x + x^3$.

10. For which size block will $5x^2 = x^3$?

11. For which size block will $2x = x^2$?

12. Can you think of a block size where $x = x^2 = x^3$?

Scientific Notation Square Puzzle

3.01 3.1×10^2 120 210,000	2.01×10^5 1.2×10^2 2.01×10^2 3.1×10^1	1.03 201 1.2×10^5 3.1×10^6	130,000 120,000 21,000 1.03×10^1
2.1×10^5 1210 2.1×10^3 10,200	31 2100 1.02×10^1 3.01×10^3	3,100,000 10.2 2.01×10^4 1.3×10^4	10.3 20,100 1020 2.1×10^2
1.02×10^4 1,200,000 1.3×10^2 1030	3010 130 31,000 2.01×10^3	13,000 3.1×10^4 1.21×10^1 1.2×10^1	210 12.1 1.3 1.02×10^2
1.03×10^3 121 301,000 1.02	$.201 \times 10^4$ 3.01×10^5 1.3×10^3 2.1×10^1	12 $.13 \times 10^4$ 1.3×10^1 30,100	102 13 103,000 1.2×10^3

Name_____Date_____

Mathematical Message - I

Write each number below in decimal from. Then place the numbers in numerical order.
When the numbers are in order, the code letters will spell out a message.

Exponential Form	Code Letter	Decimal Form	Numerical Order	Message
0.14×10^1	H			
1.56×10^1	A			
10.20×10^2	R			
1.4×10^3	O			
0.12×10^1	A			
1.02×10^2	space			
1.4×10^2	E			
1.375×10^3	O			
0.102×10^1	M			
0.1145×10^2	I			
1.2×10^2	W			
1.32×10^4	L			
1.02×10^1	space			
10.84×10^1	P			
11.45×10^2	space			
0.132×10^1	T			
1.2×10^3	T			
1.2×10^1	S			
1.145×10^2	O			
0.14×10^2	space			

Scientific Notation Square Puzzle

Square	Top	Left	Right	Bottom
1	7,800	6.1×10^3	1.7×10^2	4.5×10^1
2	61,000	170	350	1×10^{-1}
3	4.5	3.5×10^2	7.8×10^2	4.2
4	6.1	780	0.42	0.0023
5	45	0.023	3500	0.078
6	0.1	3.5×10^3	1700	0.45
7	4.2×10^0	1.7×10^3	7.8×10^{-1}	23,000
8	2.3×10^{-3}	0.78	1.7×10^{-3}	610
9	7.8×10^{-2}	0.0045	2300	1×10^{-4}
10	4.5×10^{-1}	2.3×10^3	3.5×10^{-1}	7.8
11	2.3×10^4	0.35	0.045	1×10^{-2}
12	6.1×10^2	4.5×10^{-2}	350000	42
13	0.0001	2.3×10^{-1}	3.5×10^5	0.00017
14	7.8×10^0	350,000	2.3×10^{-4}	0.001
15	0.01	0.00023	0.17	7.8×10^1
16	4.2×10^1	1.7×10^{-1}	6.1×10^1	450

Cut out the squares above. Fit the squares together so that touching edges are equivalent.

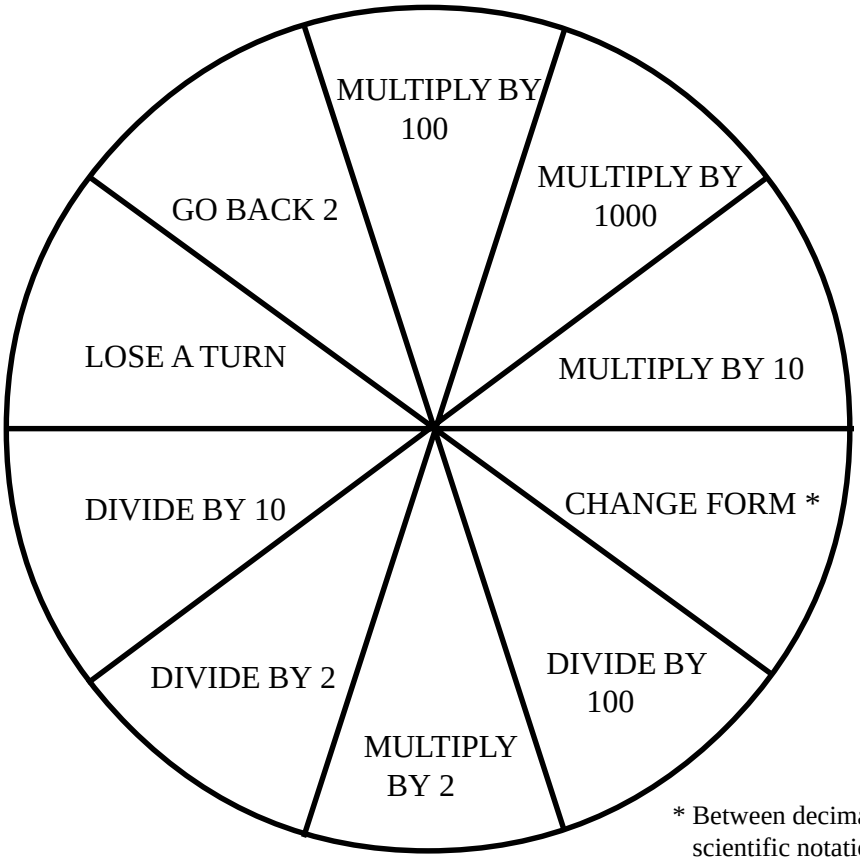
SCIENTIFIC NOTATION TEAM GAME

Start

Finish

Number in Play

Team Answer



* Between decimal and scientific notation