Think!

Math Enrichment Activities

By Christy Howe

Think!

The math enrichment activities included are a highly engaging way to challenge your little geniuses and fast finishers. Your students will utilize critical thinking and problem solving skills while building a deep and solid understanding of various math concepts. Each of the 16 printable activities offers an interesting, non-routine way to explore essential math concepts and skills.

Math Concepts and Skills Addressed:

- Fractions
- Place Value
- Rounding
- Multi-Digit Multiplication
- Long Division
- Pattern Analysis
- Decimals
- Algebra
- Measurement and Conversion
- Logic
- Problem Solving & Critical Thinking

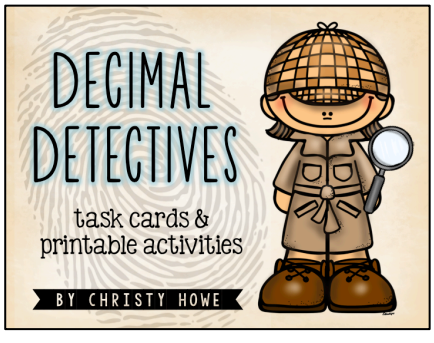
THINK! Enrichment Activities are perfect for:

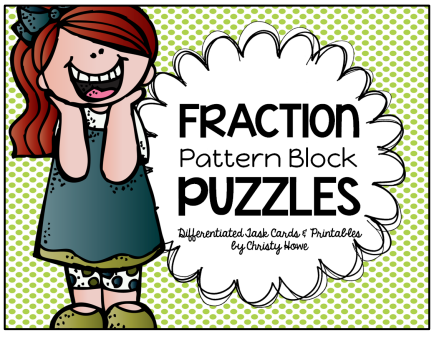
- Math Centers and Stations
- Anchor Activities
- Cooperative Learning
- Independent Enrichment

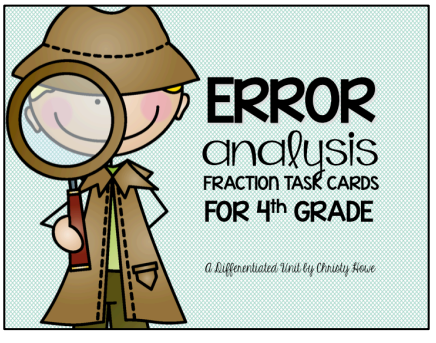
This resource includes:

- 16 No-PREP Printable Activities.
- A Detailed Answer Key with pictures
- A Grid Illustrating Content Alignment to the Common Core State Standards

If you and your students enjoy these activities, you may also like the following resources. Click on an image below to learn more! ☺







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Alignment with the CCSS

Content Standard	4th Grade	5th Grade
Identify Factors and Multiples	4.OA.4	
Generate and Analyze Patterns & Relationships	4.OA.5	5.OA.3
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Understand Place Value with Decimals		5.NBT.2
Round Multi-digit Whole Numbers	4. NBT.3	
Round Decimals to Any Place		5.NBT.4
Fluently Add and Subtract Multi-digit Whole Numbers	4.NBT.4	
Multiply Multi-digit Numbers	4.NBT.5	5.NBT.5
Use Long Division to Find Quotients	4.NBT.6	5.NBT.6
Add, Subtract, Multiply, and Divide Decimals		5.NBT.7
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Add and Subtract Fractions with Unlike Denominators		5.NF.1
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Use the Order of Operations		5.OA.1

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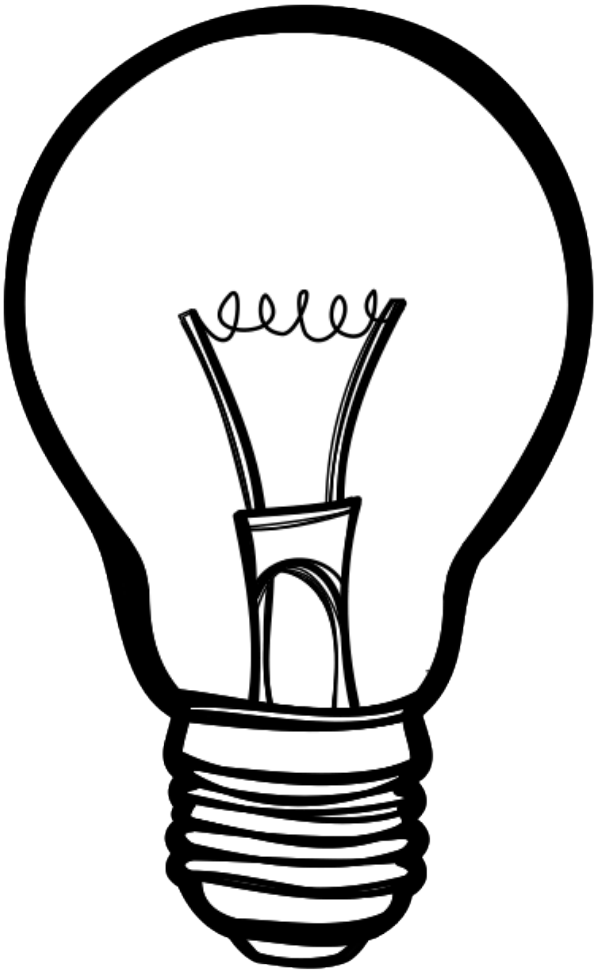
Math Enrichment Activities



Name: _____

Number Logic

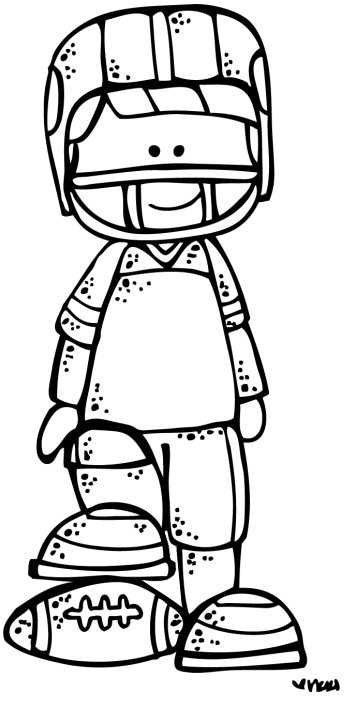
Name: _____

Directions: The players are getting ready for the annual All-Star football game. Each player gets a new jersey for the big game. Use the clues below to match each player with the number on his or her jersey.

	6	10	13	7	4	15	16	9	3
Mary									
Avi									
Eloise									
Luis									
Marcus									
Maggie									
Elvis									
Thom									
Chen									

Clues:

1. Avi is not a triangle number.
2. Thom is not a prime number.
3. Mary is a square number.
4. Eloise is 2/3 the value of Maggie.
5. Chen is a factor of 48.
6. Thom = $\sqrt{81}$.
7. Elvis is greater than Avi.
8. Marcus is a triangle number and a factor of 54.
9. Mary = 2 x (2 + 2) x ½
10. Luis is a prime number and a factor of 104.
11. Marcus is > Chen.



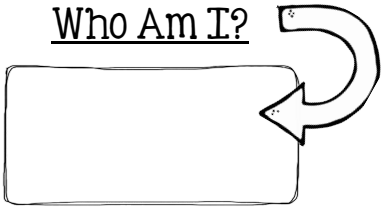
Who Am I?

Name: _____

Directions: Use the clues below to solve each number riddle.

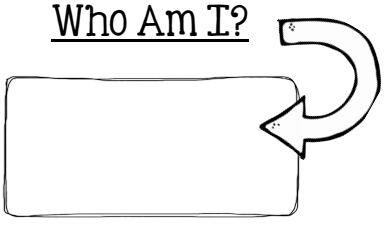
Riddle #1:

- I am greater than the number of ounces in a pound.
- I am less than than the number of hours in two days.
- The difference of my digits is 5.
- I am an odd number.



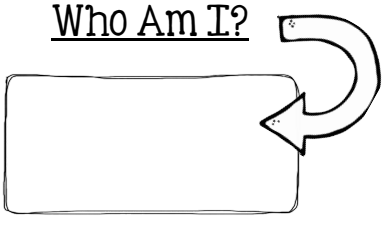
Riddle #2:

- I am less than the number of nickels in $5.00.
- I am greater than the number of inches in 4 feet.
- I am a prime number.
- The sum of my digits equals 11.



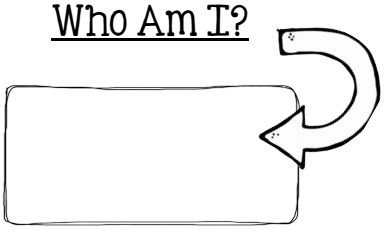
Riddle #3:

- I am an even number less than 500.
- I am greater than the number of days in a year.
- The sum of my digits equals the square root of 144.
- The digit in my hundred's place is 1/3 the digit in my ten's place.



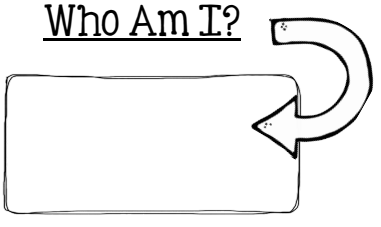
Riddle #4:

- If I was rounded to the nearest hundred, I would equal 4,000.
- None of my digits are odd.
- No digits are repeated in my number.
- The digit in my ten's place equals the number of pints in a gallon.
- The sum of the digits in my hundred's place and one's place is 6.



Riddle #5:

- All of my digits are odd.
- If I was rounded to the nearest thousand, I would equal 8,000.
- The digit in my ten's place is a composite number.
- The sum of my digits equals 22.
- No digits are repeated in my number.



What's the Order?

Name: _____

The Order of Operations, that is! ☺ Use the order of operations to solve the puzzles below. Insert parentheses and math symbols (+, -, x , ÷) in the number sequences below to reach the given answer.

1. 6 4 2 8 = 12

2. 3 7 5 9 = 4

3. 16 4 3 13 = 17

4. 8 12 2 7 4 = 8

5. 4 5 7 3 6 = 3

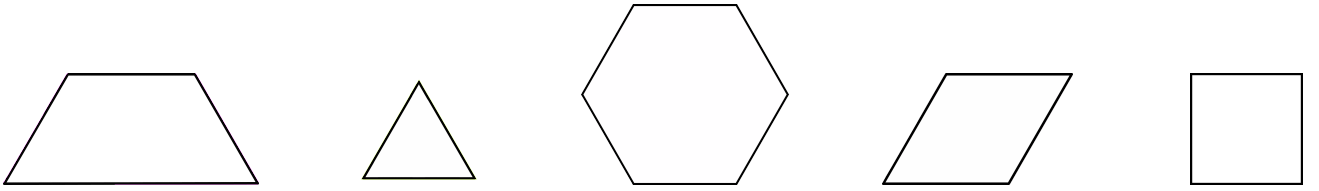
6. 13 4 1 9 6 = 13

7. 11 8 2 4 36 4 2 = 16

8. 12 5 6 4 2 3 = 100

Pattern Block Puzzles

Name: _____



Directions: Put the five polygons above in the grid below. Use the clues to determine the location of each polygon.

Riddle #1:

- The last two shapes are parallelograms.
- The area of the third shape is half that of the 1st.
- All of the angles in the second shape are acute.
- The fifth shape is a rhombus, but not a rectangle.

Riddle #2:

- The first shape has 1/3 the area of the last shape.
- The hexagon is adjacent to the square.
- The last shape is a quadrilateral.
- The second shape is a parallelogram, a rhombus, and a rectangle.

Riddle #3:

- The triangle is next to the shape with all obtuse angles.
- The rhombus with 4 right angles follows the shape with only 1 set of parallel lines.
- The area of the first shape is 2/3 that of the second shape.
- The perimeter of the last shape is less than the perimeter of the first shape.

Decimal Detective

Name: _____

Directions: Use the clues below to solve each number riddle. No digits are repeated in any number.

Riddle #1:

- The number would round to 4,000 if rounded to the nearest thousand.
- The digit in the one's place is ½ the value of the digit in the ten's place.
- The digit in the tenth's place is four times the digit in the ten's place.
- The digit in the hundredth's place is the largest counting digit.
- The digit in the hundred's place is a prime number and a factor of 9.

___ ___ ___ ___ . ___ ___

Riddle #2:

- The sum of all six digits is 31.
- The digit in the one's place equals the number of sides on a trapezoid.
- The digit in the hundred's place is a square number.
- The digit in the ten's place is 2/3 the value of the digit in the hundred's place.
- If rounded to the nearest hundred, this number would round to 8,000
- The digit in the thousand's place is prime.
- The digit in the hundredth's place is the square root of 25.

___ ___ ___ ___ . ___ ___

Riddle #3:

- The number only contains digits that are a factor of 24.
- The product of the tenth's and hundredth's place equals four.
- The digit in the one's place is ½ the digit in the hundredth's place.
- The digit in the ten's place is odd.
- The digit in the hundred's place is two less than the digit in the thousand's place

___ ___ ___ ___ . ___ ___

Riddle #4:

- The sum of the digits = 19.
- The number would round to 2,000 if rounded to the nearest hundred.
- The digit in the one's place is 3 times the digit in the thousand's place and 2 times the digit in the hundredth's place.
- The sum of the digits in the ten's and hundred's place = 1.

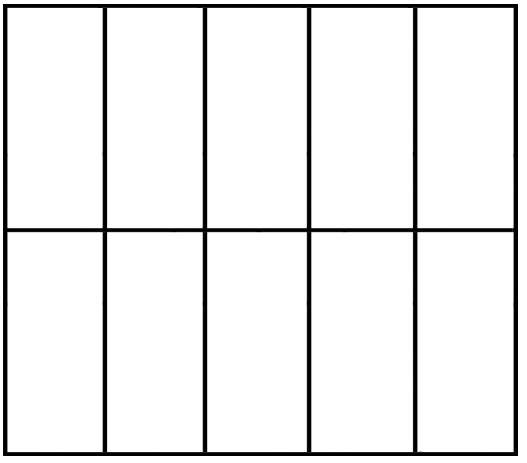
___ ___ ___ ___ . ___ ___

Fraction Fun

Name: _____

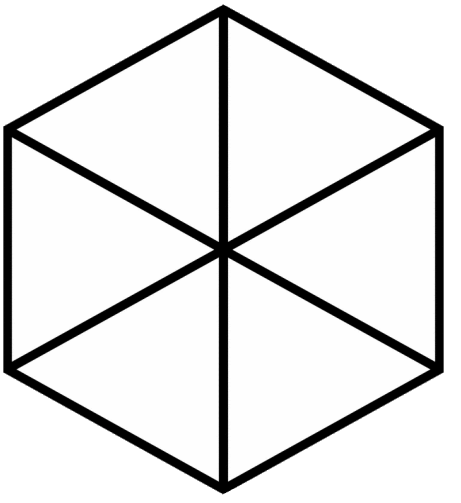
Directions: Use the clues to correctly color the fraction models below.

1.



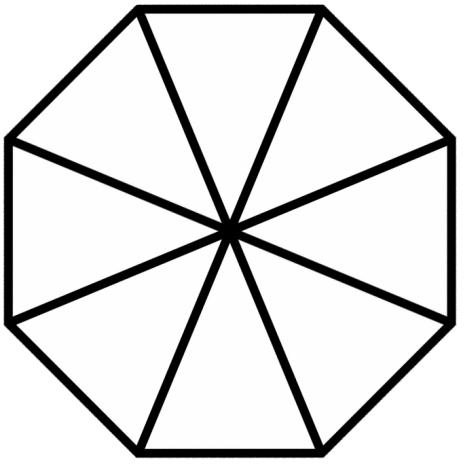
orange < yellow < red
red + blue = ½
green + yellow + orange = ½
green = 1/5
red – blue = 0.1

2.



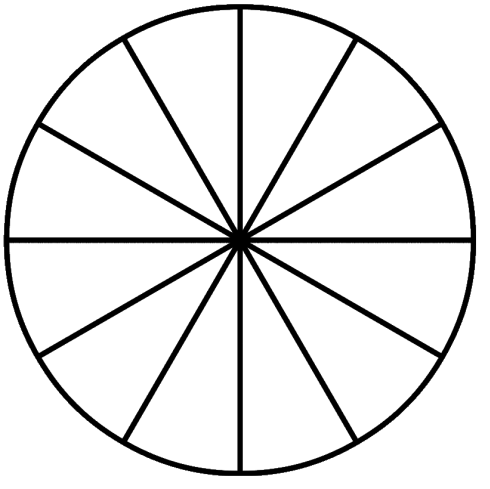
yellow + green = ½
blue + purple = ½
purple + green = 1/3
yellow = blue

3.



purple + green + yellow + white = ¾
blue = purple
green + yellow = ½
½ purple = yellow

4.



yellow – orange = brown
orange > red
red = ½ yellow
yellow + red = ½
purple = 1/6

Fun With Four

Name: _____

Directions: Combine four 4's to create 10 math equations that equal the numbers 1-10. You will need to think beyond the four basic operations of addition, subtraction, multiplication, and division.

A. 4 + (4 ÷ 4) - 4 = 1

B. _____ =2

C. _____ =3

D. _____ =4

E. _____ =5

F. _____ =6

G. _____ =7

H. _____ =8

I. _____ =9

J. _____ =10

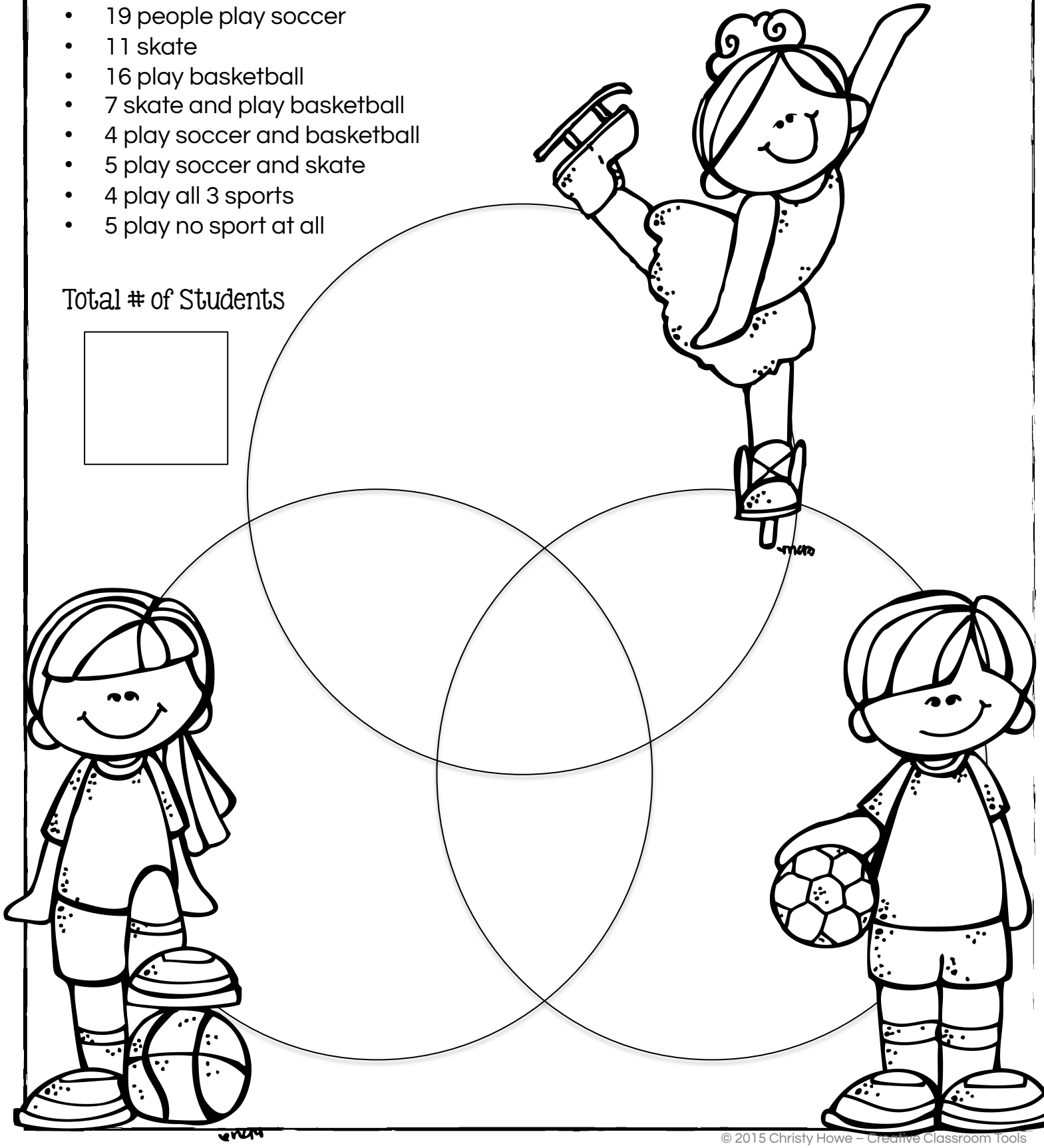
Venn-tastic!

Name: _____

Directions: Look at the information below describing what sports people play. Use the Triple Venn diagram below to organize the information and answer this question: How many students are there in all?

- 19 people play soccer
- 11 skate
- 16 play basketball
- 7 skate and play basketball
- 4 play soccer and basketball
- 5 play soccer and skate
- 4 play all 3 sports
- 5 play no sport at all

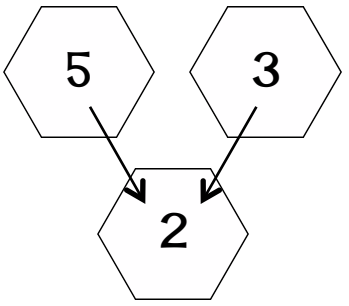
Total # of Students

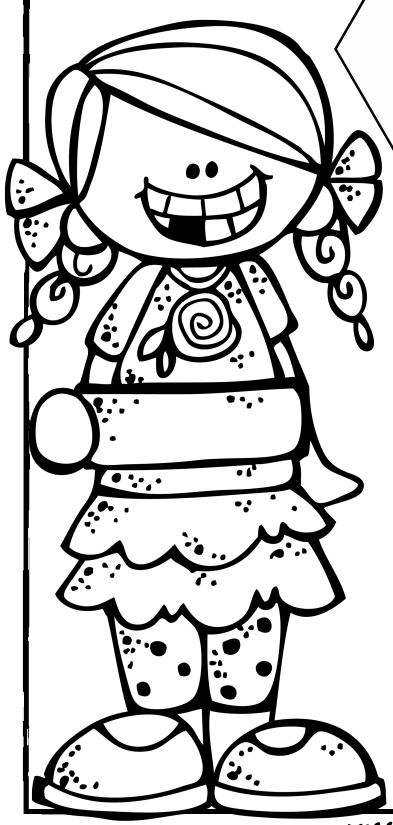


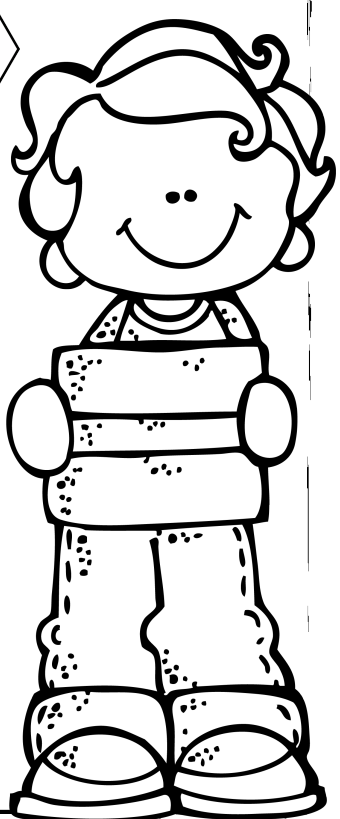
Fifteen

Name: _____

Directions: Use the numbers 1-15 once and only once in the hexagons below. Subtract the digits in adjacent hexagons and record the difference in the hexagon below. (Note: The order of the numbers does not matter.) Can you solve it more than one way? ☺







Pattern Puzzlers

Name: _____

Directions: Each box of numerals is the same in some way. Use the pattern to identify the value of the missing number. Then fill in the final box with four numbers that also follow the pattern.

1.

6	1	2	2	4	1	3	8		
4	2	12	1	4	3	2	1		

Explain the pattern: _____

2.

8	5	13	3	1	1	14	6		
4	12	7	8	2	1	5	18		

Explain the pattern: _____

3.

16	3	12	3	18	4	14	3		
2	5	3	1	3	2	1	11		

Explain the pattern: _____

4.

7	4	4	3	1	3	12	21		
9	2	13	3	6	1	7	4		

Explain the pattern: _____

Long Division Logic

Name: _____

Directions: The 5th grade is having a bake sale! In order to find out how many treats will be available for purchase, solve the long division problems below. Write each answer above a column in the matrix. Then use the clues to determine how many of each treat is available.

$3{,}792 \div 48 =$

$27 \overline{)\,1{,}296}$

$\frac{1{,}098}{18}$

$55 \overline{)\,5{,}335}$

$2{,}484 \div 69 =$

$\frac{4{,}617}{57}$

cookies						
brownies						
cupcakes						
cake pops						
lemon bars						
key lime tarts						

Clues:

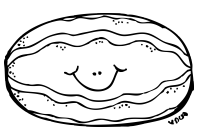
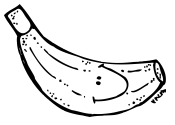
1. There are more lemon bars than brownies.
2. The number of cookies is multiple of 6 and a factor of 144.
3. The number of cake pops and brownies is a prime number.
4. The number of lemon bars is a square number.
5. The number of key lime tarts is not a multiple of 4 or a factor of 237.
6. There are an even number of cupcakes. The product of the digits = 32
7. There are 36 more cake pops than lemon bars.

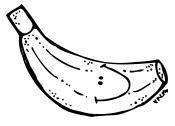
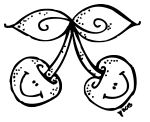
What's It Worth?

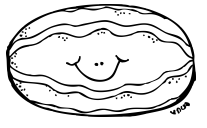
Name: _____

Directions: Use the clues below to find the value of each symbol.

If . . .

 +  = 48

 +  = 42

 +  = 28

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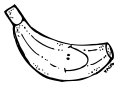
 =  =  =

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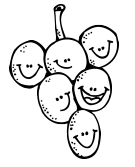
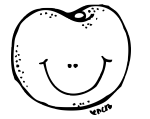
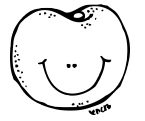
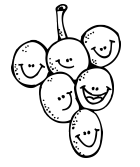
 +  = 56

 +  = 17

 +  = 47

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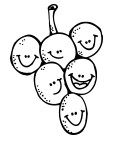 =  =  =

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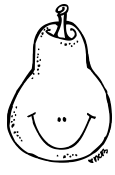
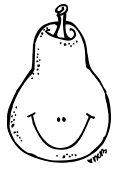
 +  = 290

 +  = 380

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Then . . .

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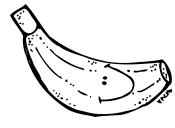
If . . .

 +  = 141

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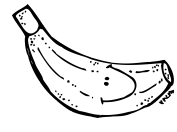
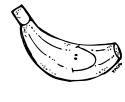
 +  = 137

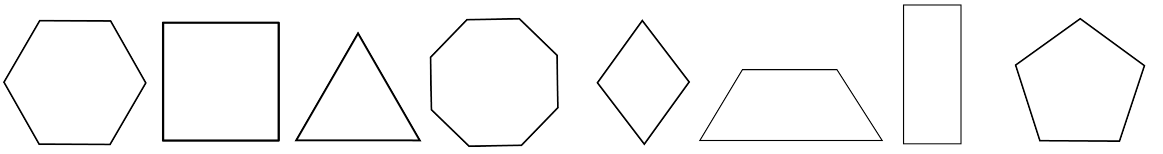
Then . . .

 =  =  =

Pondering Polygons

Name: _____

Directions: To celebrate math night, the students at Spring Valley Elementary School ate cookies in the shape of their favorite polygon. Use the clues below to determine which student ate each cookie.



Jade								
Xavier								
Clover								
Saul								
Gavin								
Sam								
Monica								
Trey								

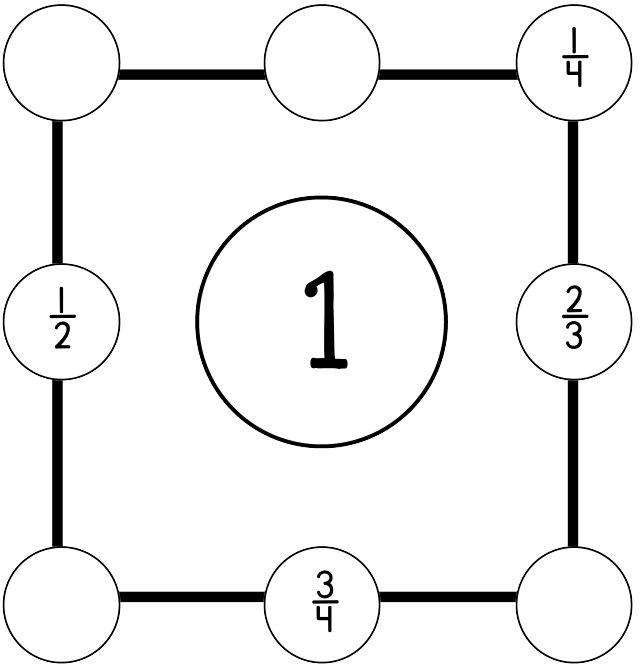
Clues:

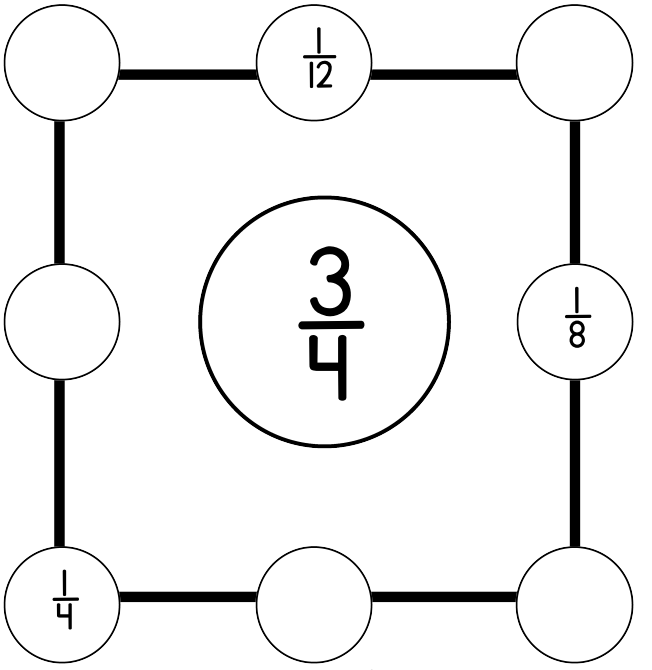
1. Xavier's cookie has ½ as many sides as Gavin's cookie.
2. Saul's cookie is a quadrilateral.
3. Sam's cookie is a rectangle.
4. Jade's cookie has twice as many sides as Clover's cookie.
5. Trey's cookie has an odd number of sides.
6. Monica's cookie is a rhombus, but not a rectangle.
7. Gavin's cookie has more sides than Jade's cookie.
8. Sam's cookie is a regular polygon.

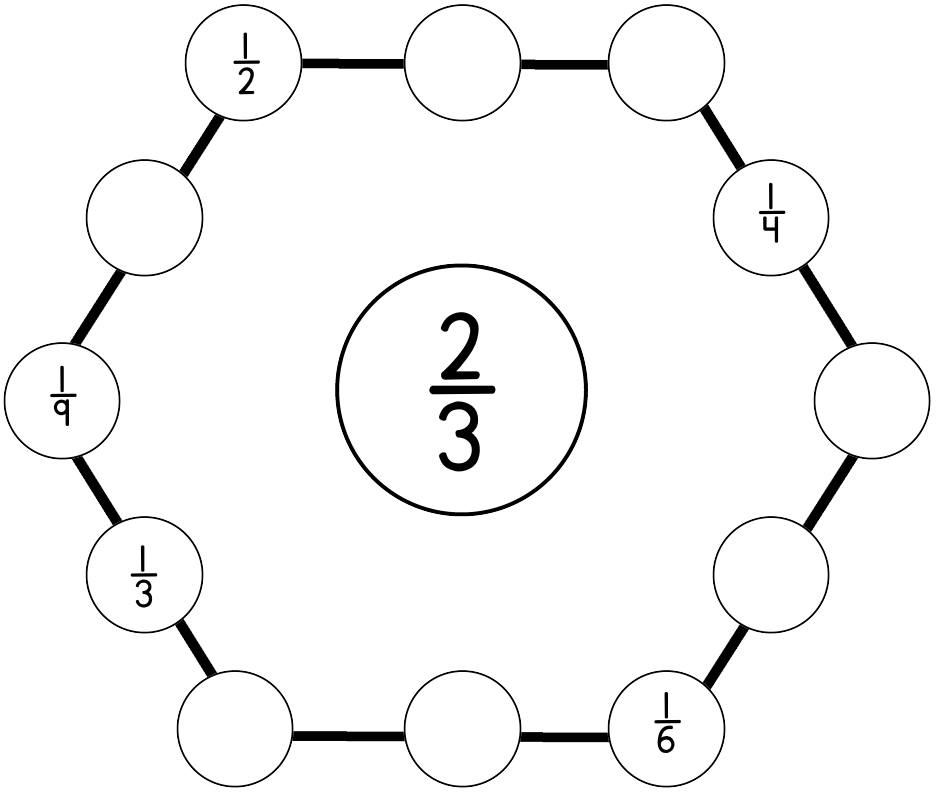
Sum Fun!

Name: _____

Directions: Add the fractions along each line to create the target sum shown in the middle. All sides of the polygon must equal the target sum.



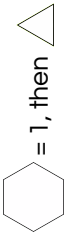
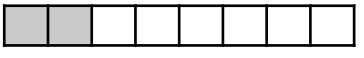




Every Which Way

Name: _____

Directions: Cut out the 12 squares below. Arrange the squares to make a 3 x 4 array. The trick? The sides that touch must be worth the same value. ☺ Go for it!

The next number in this pattern: 1, 1, 2, 3, 5, 8, 13, 21  56×10^4 4^3	the number of mm in 4 cm $8 \overline{)576}$ the# of sets of parallel lines in a trapezoid the number of hours in 5 minutes	If  = 1, then = the number of feet in 1 inch. The number of yards in ¼ of the football field The range of: 63, 82, 74, 51, 117
the number of zeroes in ten million 135 ÷ 13.5 104/13 the number of gallons in 1 quart	 $2/3 \times ¾ =$ The mean of 67, 35, 17, 81 Next number in this pattern: , 2, 4, 9, 16, 25	0.2 $\sqrt{144}$ 0.04×10^4 $0.6 \times 0.6 =$
$6 + 5 \times 2 + 8 =$ 0.5×100 $10 \times (0.37 - 0.12) =$ $44 \div 1{,}000 =$	$0.73 - 0.29 =$ The number of sides on 7 octagons number of sides on a hexagon $4 \div 1/5 =$	$¾ \div 6 =$ The number of feet in 2 inches. $112 \times 11 =$ 
the number of ounces in 4 pounds # of inches in 2 yards The number of cups in a gallon A factor of 72	25 groups of 13 $72 \overline{)6048}$ 700×800 a prime number	the number of years in 1/5 of a century A factor of 89 The next number in this pattern: 1, 2, 4, 7, 11, 16 $½ \times ⅛ =$

Think!
Answer Key

1. Number Logic:
   - Mary = 4
   - Avi = 7
   - Eloise = 10
   - Luis = 13
   - Marcus = 6
   - Maggie = 15
   - Elvis = 16
   - Thom = 9
   - Chen = 3

2. Who Am I?
   1. 27
   2. 137
   3. 390
   4. 4,086
   5. 7,591

3. What's the Order?
   More than one answer may be possible
   1. (6 + 4) x 2 – 8 = 12
   2. 3 x (7 + 5) ÷ 9 = 4
   3. (16 – 4) ÷ 3 + 13 = 17
   4. [8 + (12 ÷ 2)] ÷ 7 x 4 = 8
   5. (4 x 5 + 7) ÷ (3 + 6) = 3
   6. [13 x (4 – 1)] ÷ (9 – 6) = 13
   7. 11 x (8 – 2 x 4) + (36 – 4) ÷ 2 = 16
   8. 12 x 5 ÷ 6 x [4 + (2 x 3)] = 100

4. Pattern Block Puzzles
   1. hexagon, triangle, trapezoid, square, rhombus
   2. triangle, square, hexagon, rhombus, trapezoid
   3. rhombus, trapezoid, square, hexagon, triangle

5. Decimal Detective
   1. 4,321.89
   2. 7,964.05
   3. 8,632.14
   4. 168.579
   5. 2,076.13

6. Fraction Fun
   1. green = 2/10 or 1/5
      yellow = 2/10 or 1/5
      orange = 1/10
      red = 3/10
      blue = 2/10 or 1/5

   2. yellow = 2/6 or 1/3
      green = 1/6
      blue = 2/6 or 1/3
      purple = 1/6

   3. green = 3/8
      yellow = 1/8
      purple = 2/8 or ¼
      blue = 2/8 or ¼
      white = 0

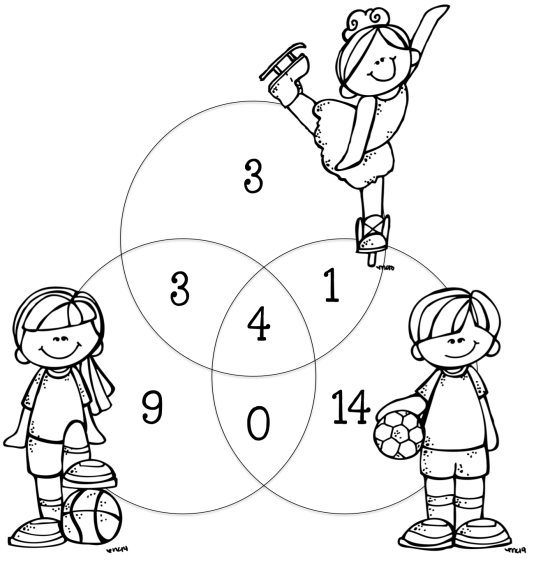
   4. yellow = 4/12 or 1/3
      orange = 3/12 or ¼
      red = 2/12 or 1/6
      brown = 1/12
      purple = 2/12 or 1/6

7. Fun With Four:
   A. 4 ÷ 4 + 4 – 4 = 1
   B. 4/4 + 4/4 = 2
   C. (4 + 4 + 4) ÷ 4 = 3
   D. (4 + 4) ÷ 4 + √4 = 4
   E. √4 + √4 + 4/4 = 5
   F. (4 + 4) ÷ 4 + 4 = 6
   G. 4 + 4 – 4/4 = 7
   H. [(4 + 4) x 4] ÷ 4 = 8
   I. 4 + (4 ÷ 4) + 4 = 9
   J. √4 + √4 + √4 + 4 = 10

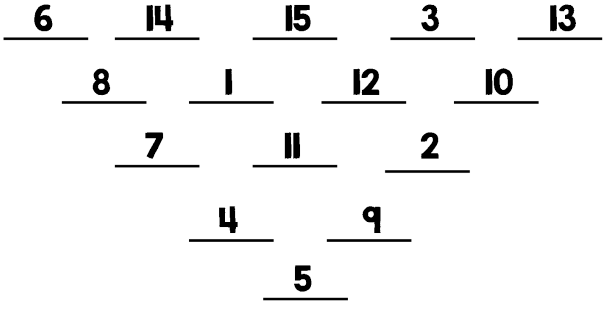
Think!

Answer Key - page 2

8. Venn-tastic:
   Total = 39 students in all



9. Fifteen:
   More than one answer may be possible.



10. Pattern Puzzles:
    More than one answer may be possible.
    1. The product of all four digits = 48
    2. The sum of the first and fourth box = the product of the digits in the 2nd and 3rd box.
    3. The quotient of the first and third box = the sum of the digits in the 2nd and fourth box.
    4. The sum of the digits in boxes 1, 2, and 3 divided by the digit in box 4 = 10.

Key:

Box 1	Box 2
Box 3	Box 4

11. Long Division Logic

- 3,792 ÷ 48 = 79
- 1,296 ÷ 27 = 48
- 1,098 ÷ 18 = 61
- 5,335 ÷ 55 = 97
- 2,484 ÷ 69 = 36
- 4,617 ÷ 57 = 81

1. Brownies = 79
2. Cookies = 48
3. Key Lime Tarts = 61
4. Cake pops = 97
5. Cupcakes = 36
6. Lemon Bars= 81

12. What's It Worth?:
    1. watermelon = 17
       cherries = 11
       banana = 31

    2. grapes = 43
       lemon = 13
       peach = 4

    3. lemon = 111
       cherries = 201
       pear = 179

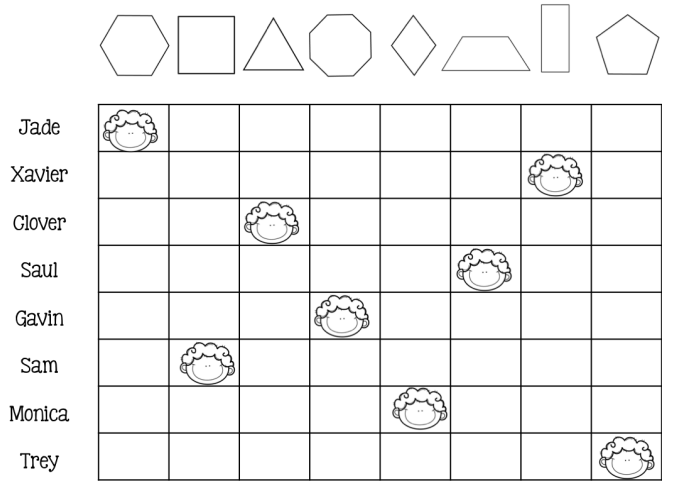
    4. banana = 78
       peach = 63
       strawberry = 59

Think!

Answer Key - page 3

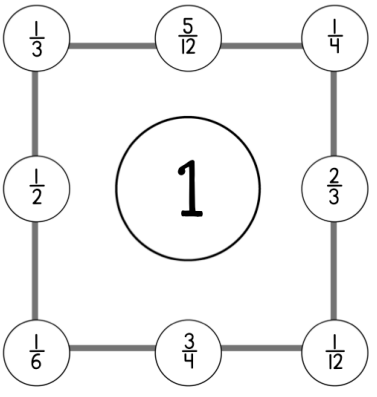
14. Pondering Polygons:

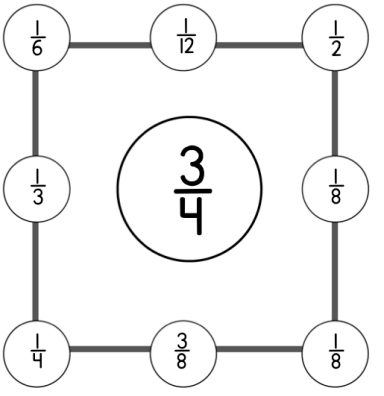
- Jade = hexagon
- Sam = square
- Clover = triangle
- Gavin = octagon
- Monica = rhombus
- Saul = trapezoid
- Xavier = rectangle
- Trey = pentagon



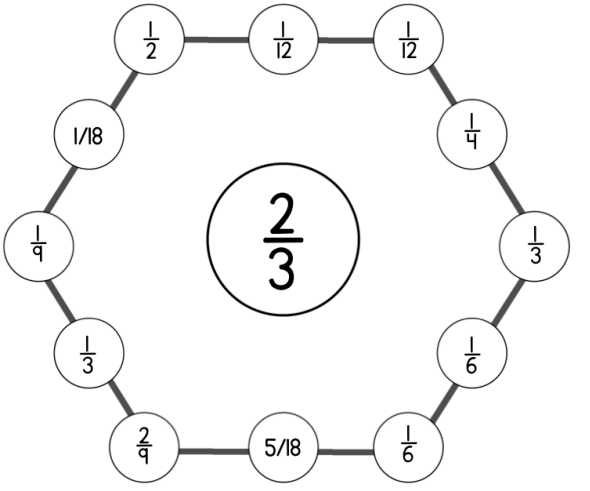
9. Sum Fun

More than one answer may be possible.





Sum Fun (contd.)



16. Every Which Way:

- see next page

Think!

Answer Key - page 4

72 ⟌ 6048 84 a prime number 7 560,000 700 x 800	135 ÷ 13.5 10 the number of gallons in 1 quart ¼ 8 7 the number of zeroes in ten million 104/13	25 groups of 13 325 the number of years in 1/5 of a century 20 121 The next number in this pattern: 1, 2, 4, 7, 11, 16 1 A factor of 89
56 x 10^4 560,000 The next number in this pattern: 1, 1, 2, 3, 5, 8, 13, 21 34 64 4^3 1/5	8 ⟌ 576 72 the number of cups in a gallon 8 64 the number of ounces in 4 pounds 24 A factor of 72 72 # of inches in 2 yards	0.2 1/5 the number of mm in 4 cm 400 0.36 0.6 x 0.6 = 0.04 x 10^4 12 $\sqrt{144}$
0.5 x 100 50 6 + 5 x 2 + 8 = 24 44 ÷ 1,000 = 0.044 10 x (0.37 – 0.12) = 25	The number of yards in ¼ of the football field 25 The range of: 63, 82, 74, 51, 117 99 the number of feet in 1 inch. 1/12 If ⬡ = 1, then ▽ = 1/6	0.73 – 0.29 = 0.44 number of sides on a hexagon 12 The number of sides on 7 octagons 56 4 ÷ 1/5 = 20
2/3 x ¾ = ½ Next number in this pattern:, 2, 4, 9, 16, 25 36 The mean of 67, 35, 17, 81 50 ¼	The number of feet in 2 inches. 1/6 2/3 1/8 ¾ ÷ 6 = 1,232 112 x 11 =	½ x ¼ = 1/8 The next number in this pattern: 1, 2, 4, 7, 11, 16 121 20 the number of years in 1/5 of a century 1

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