

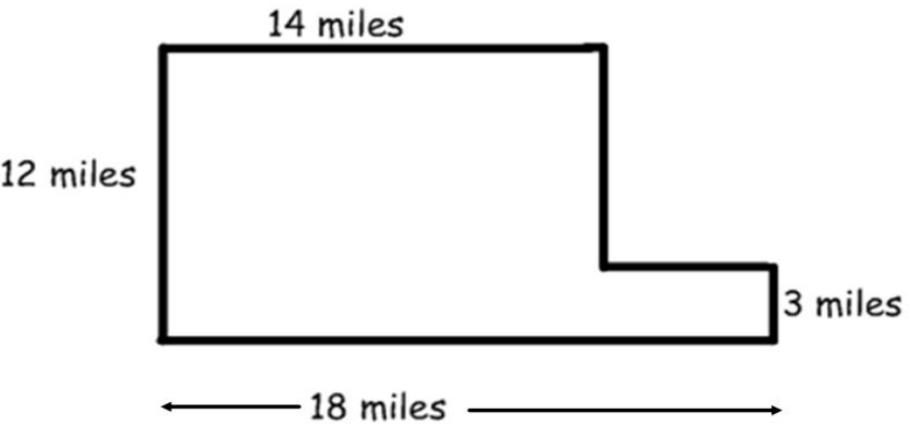
## 5<sup>th</sup> Grade Problem Solving, Round 1

1.	<p>The Panthers team has five teachers: Mr. Rodriguez, Mrs. Johnson, Mr. Clark, Miss Larsen, and Miss Flynn. Their rooms are in the same hallway. Mr. Clark is before Mr. Rodriguez and after Miss Larsen. Mr. Rodriguez is before Mrs. Johnson and after Mr. Clark. Miss Flynn is before Mr. Clark and Mrs. Johnson. Miss Larsen is before Miss Flynn. From these clues, tell the order of the rooms as you walk down the hallway.</p>															
2.	<p>1634 students attend River View School. The school has 72 more girls than boys. How many girls attend River View School?</p>															
3.	<p>For every 3 minutes that Jaliyah reads a book, her parents allow her to spend 5 minutes on the computer. If she wants to watch a 1 1/2 hour webcast, how long will she need to read?</p>															
4.	<p>Nick records the weight of his puppy every month in a chart like the one shown below.</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Puppy's Age</th> <th style="padding: 5px;">Puppy's Weight</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1 month</td> <td style="padding: 5px;">10 pounds</td> </tr> <tr> <td style="padding: 5px;">2 months</td> <td style="padding: 5px;">15 pounds</td> </tr> <tr> <td style="padding: 5px;">3 months</td> <td style="padding: 5px;">19 pounds</td> </tr> <tr> <td style="padding: 5px;">4 months</td> <td style="padding: 5px;">22 pounds</td> </tr> <tr> <td style="padding: 5px;">5 months</td> <td style="padding: 5px;">??</td> </tr> <tr> <td style="padding: 5px;">6 months</td> <td style="padding: 5px;">??</td> </tr> </tbody> </table> <p>If the pattern of the puppy's weight gain continues, how many pounds will the puppy weigh at 6 months?</p>	Puppy's Age	Puppy's Weight	1 month	10 pounds	2 months	15 pounds	3 months	19 pounds	4 months	22 pounds	5 months	??	6 months	??	
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5 months	??															
6 months	??															

**Team Number** \_\_\_\_\_

**Score** \_\_\_\_\_ / 40

### 5<sup>th</sup> Grade Problem Solving, Round 2

1.	Jamel has chickens and cows. In his field, he counts 17 heads and 60 feet. How many cows does Jerry have?	
2.	<p>A map of Williamson County is shown below. How many square miles make up Williamson County?</p> 	
3.	What is the largest prime number that when multiplied by itself has a product less than 50?	
4.	Kristen went shopping with a certain amount of money. In the first store she spent $\frac{1}{2}$ of her money. In the second store she spent $\frac{1}{4}$ of her money. In the third store she spent $\frac{1}{8}$ of her money. She then had \$9 left. How much money did Kristen have when she started her shopping?	

Team Number \_\_\_\_\_

Score \_\_\_\_\_ / 40

## 5<sup>th</sup> Grade Problem Solving, Round 1

1.	<p>The Panthers team has five teachers: Mr. Rodriguez, Mrs. Johnson, Mr. Clark, Miss Larsen, and Miss Flynn. Their rooms are in the same hallway. Mr. Clark is before Mr. Rodriguez and after Miss Larsen. Mr. Rodriguez is before Mrs. Johnson and after Mr. Clark. Miss Flynn is before Mr. Clark and Mrs. Johnson. Miss Larsen is before Miss Flynn. From these clues, tell the order of the rooms as you walk down the hallway.</p>	<p><b><u>Miss Larsen,</u></b> <b><u>Miss Flynn,</u></b> <b><u>Mr. Clark,</u></b> <b><u>Mr. Rodriguez,</u></b> <b><u>Mrs. Johnson</u></b></p>														
2.	<p>1634 students attend River View School. The school has 72 more girls than boys. How many girls attend River View School?</p>	<p><b><u>853 girls</u></b></p>														
3.	<p>For every 3 minutes that Jaliyah reads a book, her parents allow her to spend 5 minutes on the computer. If she wants to watch a 1 1/2 hour webcast, how long will she need to read?</p>	<p><b><u>54 minutes</u></b></p>														
4.	<p>Nick records the weight of his puppy every month in a chart like the one shown below.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 5px 0;"> <thead> <tr> <th style="width: 50%;">Puppy's Age</th> <th style="width: 50%;">Puppy's Weight</th> </tr> </thead> <tbody> <tr> <td>1 month</td> <td>10 pounds</td> </tr> <tr> <td>2 months</td> <td>15 pounds</td> </tr> <tr> <td>3 months</td> <td>19 pounds</td> </tr> <tr> <td>4 months</td> <td>22 pounds</td> </tr> <tr> <td>5 months</td> <td>??</td> </tr> <tr> <td>6 months</td> <td>??</td> </tr> </tbody> </table> <p>If the pattern of the puppy's weight gain continues, how many pounds will the puppy weigh at 6 months?</p>	Puppy's Age	Puppy's Weight	1 month	10 pounds	2 months	15 pounds	3 months	19 pounds	4 months	22 pounds	5 months	??	6 months	??	<p><b><u>25 pounds</u></b></p>
Puppy's Age	Puppy's Weight															
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6 months	??															

Team Number \_\_\_\_\_

Score \_\_\_\_\_ / 40

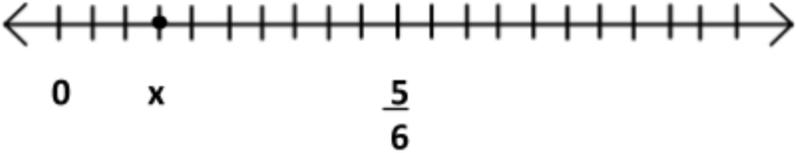
### 5<sup>th</sup> Grade Problem Solving, Round 2

1.	Jamel has chickens and cows. In his field, he counts 17 heads and 60 feet. How many cows does Jerry have?	<b><u>13 cows</u></b>
2.	<p>A map of Williamson County is shown below. How many square miles make up Williamson County?</p> <div style="text-align: center;"> </div>	<b><u>180 square miles</u></b>
3.	What is the largest prime number that when multiplied by itself has a product less than 50?	<b><u>7</u></b>
4.	Kristen went shopping with a certain amount of money. In the first store she spent $\frac{1}{2}$ of her money. In the second store she spent $\frac{1}{4}$ of her money. In the third store she spent $\frac{1}{8}$ of her money. She then had \$9 left. How much money did Kristen have when she started her shopping?	<b><u>\$72</u></b>

Team Number \_\_\_\_\_

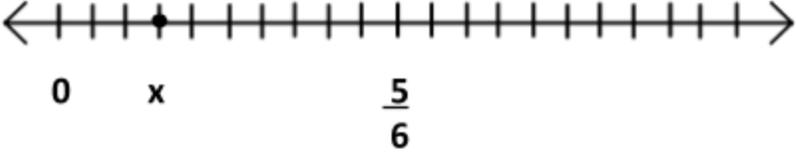
Score \_\_\_\_\_ / 40

### 6<sup>th</sup> Grade Problem Solving, Round 1

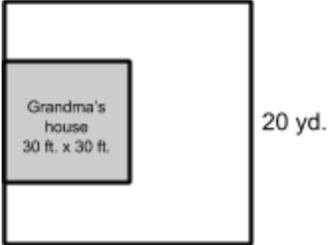
<p><b>1.</b></p>	<p>The ratio of Red Delicious to Granny Smith apple trees is 11 to 4. There are 840 trees altogether. How many are Granny Smith trees?</p>	
<p><b>2.</b></p>	<p>Tamara collects rocks. She has fewer than six dozen in her collection. If she groups the rocks by 2s, 1 rock is left over. If she groups the rocks by 3s, 2 are left over. If she groups the rocks by 4s, 3 are left over. If she groups the rocks by 5s, 4 are left over. How many rocks are in Tamara's collection?</p>	
<p><b>3.</b></p>	<p>Given the following digits, how many two-digit numbers exist that can be read the same when reflected across a horizontal line? 0 1 2 3 4 5 6 7 8 9</p>	
<p><b>4.</b></p>	<p>On the number line below, what is the fractional number represented by X ?</p> 	



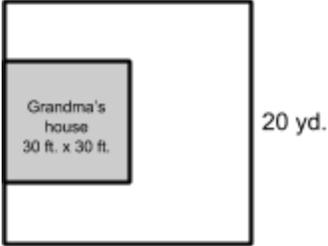
### Problem Solving Round 1 Answers

<p><b>1.</b></p>	<p>The ratio of Red Delicious to Granny Smith apple trees is 11 to 4. There are 840 trees altogether. How many are Granny Smith trees?</p>	<p><b>224</b></p>
<p><b>2.</b></p>	<p>Tamara collects rocks. She has fewer than six dozen in her collection. If she groups the rocks by 2s, 1 rock is left over. If she groups the rocks by 3s, 2 are left over. If she groups the rocks by 4s, 3 are left over. If she groups the rocks by 5s, 4 are left over. How many rocks are in Tamara's collection?</p>	<p><b>59</b></p>
<p><b>3.</b></p>	<p>Given the following digits, how many two-digit numbers exist that can be read the same when reflected across a horizontal line?</p> <p>0   2 3 4 5 6 7 8 9</p> <p style="text-align: center;"><i>(10, 11, 13, 18, 30, 31, 33, 38, 80, 81, 83, 88)</i></p>	<p><b>12</b></p>
<p><b>4.</b></p>	<p>On the number line below, what is the fractional number represented by X ?</p> 	<p><b><math>\frac{1}{4}</math></b></p>

### 6<sup>th</sup> Grade Problem Solving, Round 2

1.	The product of the age of twins and their younger brother is 36. What is the sum of the children's ages?	
2.	The amount of money in Raul's bank account is 80 percent of his sister Tanisha's account. Together they have \$2700. How much money is in Raul's account?	
3.	<p>Susie is locked out of her house and can only remember a few numbers of the combination to the hidden lockbox containing a key. She knows that it follows a certain mathematical pattern. There are 7 numbers in the code, and she knows that the first 4 numbers are 2, 5, 11, and 23. She can also remember the last number, which is 191.</p> <p>What is the sum of <b>x</b> and <b>y</b>?</p> <p style="text-align: center;">2, 5, 11, 23, <u>  <b>x</b>  </u>, <u>  <b>y</b>  </u>, 191</p>	
4.	<p>How many hours will it take Andrea to mow her grandma's square lot if she mows 10 square yards every minute? Express your answer as a fraction in lowest terms.</p>  <p>The diagram shows a large square representing a lot. Inside the lot, in the top-left corner, is a smaller shaded square representing a house. The house is labeled "Grandma's house 30 ft. x 30 ft.". To the right of the lot, the side length is labeled "20 yd.".</p>	

### 6<sup>th</sup> Grade Problem Solving, Round 2

<p><b>1.</b></p>	<p>The product of the age of twins and their younger brother is 36. What is the sum of the children's ages?</p>	<p><b>13</b></p>
<p><b>2.</b></p>	<p>The amount of money in Raul's bank account is 80 percent of his sister Tanisha's account. Together they have \$2700. How much money is in Raul's account?</p>	<p><b>\$1200</b></p>
<p><b>3.</b></p>	<p>Susie is locked out of her house and can only remember a few numbers of the combination to the hidden lockbox containing a key. She knows that it follows a certain mathematical pattern. There are 7 numbers in the code, and she knows that the first 4 numbers are 2, 5, 11, and 23. She can also remember the last number, which is 191. What is the sum of <b>x</b> and <b>y</b>?</p> <p style="text-align: center;">2, 5, 11, 23, <u>   </u><b>x</b>, <u>   </u><b>y</b>, 191</p>	<p><b>142</b></p>
<p><b>4.</b></p>	<p>How many hours will it take Andrea to mow her grandma's square lot if she mows 10 square yards every minute? Express your answer as a fraction in lowest terms.</p> 	<p><b><math>\frac{1}{2}</math></b></p>

Greater Cleveland Council of Teachers of Mathematics  
5<sup>th</sup> and 6<sup>th</sup> Grade Problem Solving Tournament 2014

**5<sup>th</sup> and 6<sup>th</sup> Grade Mental Math**

1.	What is the total number of sides on a hexagon and 2 octagons?	22
2.	Find the area of the triangle with a base of 7 in and a height of 16 in.	56 sq. in
3.	How many ways can 5 people arrange themselves in a line?	120 ways
4.	Evaluate two to the fifth power.	32
5.	Is the number 1524 divisible by 4?	yes
6.	If you have 84 cookies, how many dozen cookies do you have?	8 dozen
7.	What is the least common multiple of 8 and 12?	24
8.	Stan has four dimes and nine nickels. How many cents does he have?	85 cents
9.	If Susan divides 52 stickers between her three friends and herself, how many stickers will she have?	13 stickers
10.	Matt ate $3\frac{1}{2}$ cups of popcorn and his friend John ate $2\frac{1}{4}$ cups of popcorn. How many cups of popcorn did they eat altogether?	$5\frac{3}{4}$ cups

Team Number \_\_\_\_\_

Score \_\_\_\_\_/10

**Greater Cleveland Council of Teachers of Mathematics  
5th and 6th Grade Problem Solving Tournament 2014**

**5th/6th Grade ~ Team Construction Activity**

**Read All Steps Before Beginning**

1. Orient your 8.5" x 11" paper so that the 11" side is horizontal.  
Label the X, the Y axis, and the Origin S

2. Graph and connect the following coordinates in the order given.

M (-6, 3) A (9, 3) T (9, -6) H (-6, -6) .....Connect Point H to point M

3. Label and identify the coordinate for the given points below:

Where MA crosses the y-axis, label this point R Coordinate \_\_\_\_\_

Where AT crosses the x-axis, label this point O Coordinate \_\_\_\_\_

Where TH crosses the y-axis, label this point C Coordinate \_\_\_\_\_

Where HM crosses the x-axis, label this point K Coordinate \_\_\_\_\_

4. Divide Quadrilateral MATH into thirds horizontally and shade in the top  $\frac{1}{3}$  using diagonal line segments.

5. Divide Quadrilateral RAOS into thirds vertically and shade in  $\frac{2}{3}$  of the quadrilateral using opposite diagonal line segments.

6. Divide Quadrilateral MRCH into sixths vertically and shade in the left most  $\frac{1}{3}$  of the quadrilateral using horizontal line segments.

7. What fraction of Quadrilateral MATH is double shaded? \_\_\_\_\_

8. What fraction of Quadrilateral MATH is single shaded? \_\_\_\_\_

9. What fraction of Quadrilateral MATH is not shaded? \_\_\_\_\_

Team Number \_\_\_\_\_

Score \_\_\_\_\_/45 points

## 5th/6th Grade ~ Team Construction Activity ~ Scoring Rubric

Some of the graders should work through the construction in order to gain a fuller appreciation of the task. Extra working marks are perfectly acceptable. One scoring suggestion for the Construction Activity is to assign one individual to grade a single requirement, and then pass it to another individual to grade the next requirement, and so on. This helps to provide consistency in scoring. The final product is worth 45 points.

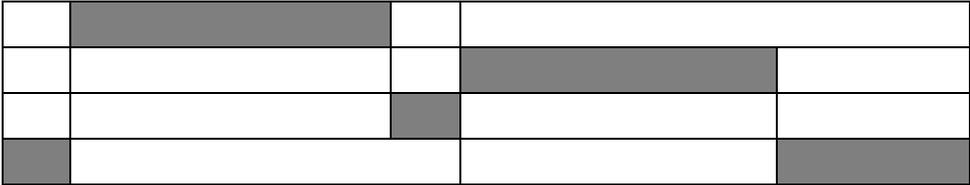
Each of the requirements below must be executed completely and correctly in order to earn the available points. Incorrect or incomplete attempts earn 0 points, unless the scorers at the site choose to award partial credit on a consistent basis.

1. Orient the paper correctly and Label the X, Y, and Origen correctly. \_\_\_\_\_/3
  
2. Graph and Connect Points correctly to create a quadrilateral. Point M \_\_\_\_\_/3  
Point A \_\_\_\_\_/3  
Point T \_\_\_\_\_/3  
Point H \_\_\_\_\_/3
  
3. Correctly Label/ Identify the coordinate for the given points Point R (0,3) \_\_\_\_\_/3  
Point O (9,0) \_\_\_\_\_/3  
Point C (0,-6) \_\_\_\_\_/3  
Point K (-6,0) \_\_\_\_\_/3
  
4. Correctly Divide Quadrilateral MATH into 1/3rds and Shade Top 1/3. \_\_\_\_\_/3
  
5. Correctly Divide Quadrilateral RAOS into 1/3rds and Shade 2/3. \_\_\_\_\_/3
  
6. Correctly Divide Quadrilateral MRCH into 1/6ths and Shade 1/3. \_\_\_\_\_/3
  
7. Correct Fraction: 24/135 or 8/45 \_\_\_\_\_/3
8. Correct Fraction: 21/135 or 11/35 \_\_\_\_\_/3
9. Correct Fraction: 78/135 or 26/45 \_\_\_\_\_/3

Team Total \_\_\_\_\_

**Greater Cleveland Council of Teachers of Mathematics  
5<sup>th</sup> and 6<sup>th</sup> Grade Problem Solving Tournament 2014**

**5<sup>th</sup> Grade Pile of 10**

<b>1.</b>	A new math symbol has been created ( # ) such that $A \# B = AB + B^2 - 3$ . Find the value of $11 \# 7$ .	
<b>2.</b>	<p>What fractional part of the figure is shaded?</p> 	
<b>3.</b>	A basket of fruit contains only bananas, apples, and oranges. The basket contains 2 bananas, 6 red apples, 8 green apples and some oranges. If the total number of pieces of fruit is three times the number of apples in the basket, how many oranges are in the basket?	
<b>4.</b>	If you multiply a mystery number by itself and subtract 19 you get 30. What is the mystery number?	
<b>5.</b>	The perimeter of square A is 24 centimeters. The area of Square A is four times the area of Square B. What is the area of square B?	

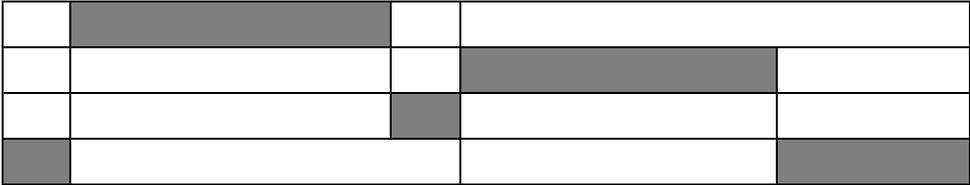
6.	A jet plane has a cruising speed of 600 mph. This is how many miles per minute?	
7.	$\triangle \times \square = 78$ $\square - \triangle = 7$ $\square + \triangle = ??$	
8.	If you multiply a mystery number by itself and subtract 19 you get 30. What is the mystery number?	
9.	What is the smallest three - digit number with the property that the sum of its digits is a prime number?	
10.	If a third is a fourth of it, what is it? Show answer in fractional form.	

Team Number \_\_\_\_\_

Score \_\_\_\_\_/80

**Greater Cleveland Council of Teachers of Mathematics  
5<sup>th</sup> and 6<sup>th</sup> Grade Problem Solving Tournament 2014**

**5<sup>th</sup> Grade Pile of 10**

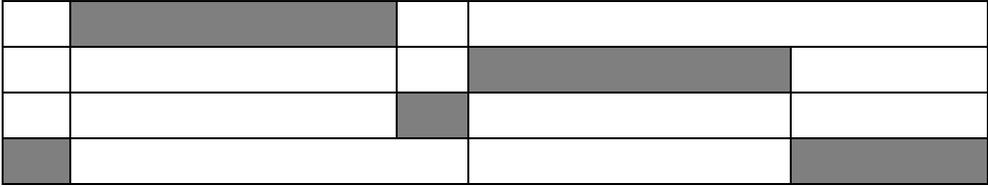
<b>1.</b>	A new math symbol has been created ( # ) such that $A \# B = AB + B^2 - 3$ . Find the value of $11 \# 7$ .	<b><u>123</u></b>
<b>2.</b>	<p>What fractional part of the figure is shaded?</p> 	<b><u>1/4</u></b>
<b>3.</b>	A basket of fruit contains only bananas, apples, and oranges. The basket contains 2 bananas, 6 red apples, 8 green apples and some oranges. If the total number of pieces of fruit is three times the number of apples in the basket, how many oranges are in the basket?	<b><u>26 oranges</u></b>
<b>4.</b>	If you multiply a mystery number by itself and subtract 19 you get 30. What is the mystery number?	<b><u>7</u></b>
<b>5.</b>	The perimeter of square A is 24 centimeters. The area of Square A is four times the area of Square B. What is the area of square B?	<b><u>9 sq. cm.</u></b>

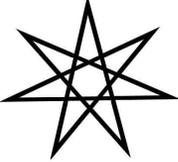
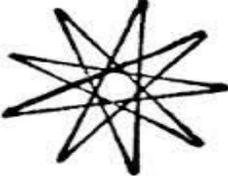
6.	A jet plane has a cruising speed of 600 mph. This is how many miles per minute?	<b><u>10 miles per minute</u></b>
7.	$\triangle \times \square = 78$ $\square - \triangle = 7$ $\square + \triangle = ??$	<b><u>19</u></b>
8.	If you multiply a mystery number by itself and subtract 19 you get 30. What is the mystery number?	<b><u>7</u></b>
9.	What is the smallest three - digit number with the property that the sum of its digits is a prime number?	<b><u>101</u></b>
10.	If a third is a fourth of it, what is it? Show answer in fractional form.	<b><u>1 1/3 or 4/3</u></b>

Team Number \_\_\_\_\_

Score \_\_\_\_\_/80

## 6<sup>th</sup> Grade Pile of 10

<b>1.</b>	<p>The Panthers team has five teachers: Mr. Rodriguez, Mrs. Johnson, Mr. Clark, Miss Larsen, and Miss Flynn. Their rooms are in the same hallway. Mr. Clark is before Mr. Rodriguez and after Miss Larsen. Mr. Rodriguez is before Mrs. Johnson and after Mr. Clark. Miss Flynn is before Mr. Clark and Mrs. Johnson. Miss Larsen is before Miss Flynn. From these clues, tell the order of the rooms as you walk down the hallway.</p>	
<b>2.</b>	<p>What fractional part of the figure is shaded?</p> 	
<b>3.</b>	<p>If 6 apples cost the same as 3 bananas, and 4 bananas cost the same as 5 melons, how many melons can Jane buy for the price of 32 apples?</p>	
<b>4.</b>	<p>Which shape has a larger area? A square with a perimeter of 20 inches or a non-square rectangle with a perimeter of 20 inches?</p>	

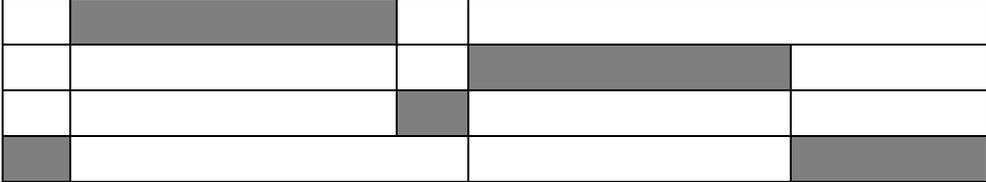
5.	<p>Michael Phelps won 6 gold medals in the 2004 Olympics. How many points would his medal have if it followed the pattern shown?</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">               1 Gold Medal         </div> <div style="text-align: center;">               2 Gold Medals         </div> <div style="text-align: center;">               3 Gold Medals         </div> </div>	
6.	<p>If a man can mow a lawn that is 200 square feet in two hours, how long will it take to mow a lawn that is fifty square feet, assuming he mows at the same rate of speed?</p>	
7.	<p>  X  = 78   -  = 7   +  = ??         </p>	
8.	<p>What will be the 99<sup>th</sup> key that is pressed when you type this sequence?              I LOVE MATH!! LOVE MATH!! LOVE MATH!! LOVE MATH!              (Note: There is no space between ! and I )</p>	
9.	<p>What is the largest three - digit number with the property that the sum of its digits is a prime number?</p>	
10	<p>A half is a third of a fourth of it. What is it?</p>	

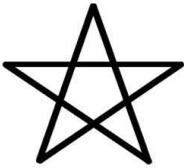
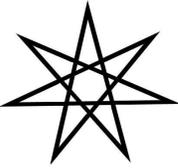
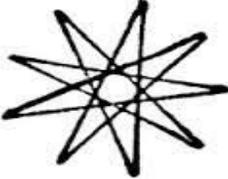
Team Number \_\_\_\_\_

Score \_\_\_\_\_/80

5<sup>th</sup> and 6<sup>th</sup> Grade Problem Solving Tournament 2014

6<sup>th</sup> Grade Pile of 10

<p>1.</p>	<p>The Panthers team has five teachers: Mr. Rodriguez, Mrs. Johnson, Mr. Clark, Miss Larsen, and Miss Flynn. Their rooms are in the same hallway. Mr. Clark is before Mr. Rodriguez and after Miss Larsen. Mr. Rodriguez is before Mrs. Johnson and after Mr. Clark. Miss Flynn is before Mr. Clark and Mrs. Johnson. Miss Larsen is before Miss Flynn. From these clues, tell the order of the rooms as you walk down the hallway.</p>	<p><u>Miss Larsen,</u> <u>Miss Flynn,</u> <u>Mr. Clark,</u> <u>Mr. Rodriguez,</u> <u>Mrs. Johnson</u></p>
<p>2.</p>	<p>What fractional part of the figure is shaded?</p> 	<p><u>1/4</u></p>
<p>3.</p>	<p>If 6 apples cost the same as 3 bananas, and 4 bananas cost the same as 5 melons, how many melons can Jane buy for the price of 32 apples?</p>	<p><u>20 melons</u></p>
<p>4.</p>	<p>Which shape has a larger area? A square with a perimeter of 20 inches or a non-square rectangle with a perimeter of 20 inches?</p>	<p><u>square</u></p>

5.	<p>Michael Phelps won 6 gold medals in the 2004 Olympics. How many points would his medal have if it followed the pattern shown?</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>1 Gold Medal</p> </div> <div style="text-align: center;">  <p>2 Gold Medals</p> </div> <div style="text-align: center;">  <p>3 Gold Medals</p> </div> </div>	<u>15 points</u>
6.	<p>If a man can mow a lawn that is 200 square feet in two hours, how long will it take to mow a lawn that is fifty square feet, assuming he mows at the same rate of speed?</p>	<u>½ hour</u>
7.	$\triangle \times \square = 78$ $\square - \triangle = 7$ $\square + \triangle = ??$	19
8.	<p>What will be the 99<sup>th</sup> key that is pressed when you type this sequence?  I LOVE MATH!! LOVE MATH!! LOVE MATH!! LOVE MATH!  (Note: There is no space between ! and I )</p>	<u>L KEY</u>
9.	<p>What is the largest three - digit number with the property that the sum of its digits is a prime number?</p>	<u>995</u>
10	<p>A half is a third of a fourth of it. What is it?  .</p>	<u>6</u>

Team Number \_\_\_\_\_

Score \_\_\_\_\_/80