



Knights of Pi Math Tournament – May 16, 2009

## Puzzle Round 5th/6th

Congratulations on reaching the final round of the tournament! Each question has a one-word answer that relates to a certain theme. You only have one hour, so use your time wisely. Some questions may be challenging, but do not give up—have fun with it!

1. Solve this riddle:

It is hot where I'm at—so hot you would die.

My height in glass would tell you why.

It's been nice meeting you—my initials are H.g.

Just don't eat me, you see?

2. Decode the message:

AARDVARKS' SIMMERING SWIMMING POOLS

LLAMAS ZOOM MOODILY, RAMMING PASSERBY

KITTENS DROOL, SNOOZING SILLILY

BABBING AARDVARKS SHUNNINGLY ANNIHILATE GREEDY FERRETS

3. Sudoku: Solve the puzzle using each of the numbers 1 through 9 once and only once in each row, column, and 3x3 square. Then, use the circled numbers and the chart to make letters, and unscramble the letters to find the answer.

2	5		1					
	○			8		5	○	6
					○	1		7
			3			6	9	4
7			9		5			8
4	2	9			1		○	
3		4						
1		6		5				
			○		7			1

Key	
1	A
2	C
3	E
4	I
5	M
6	O
7	R
8	S
9	T

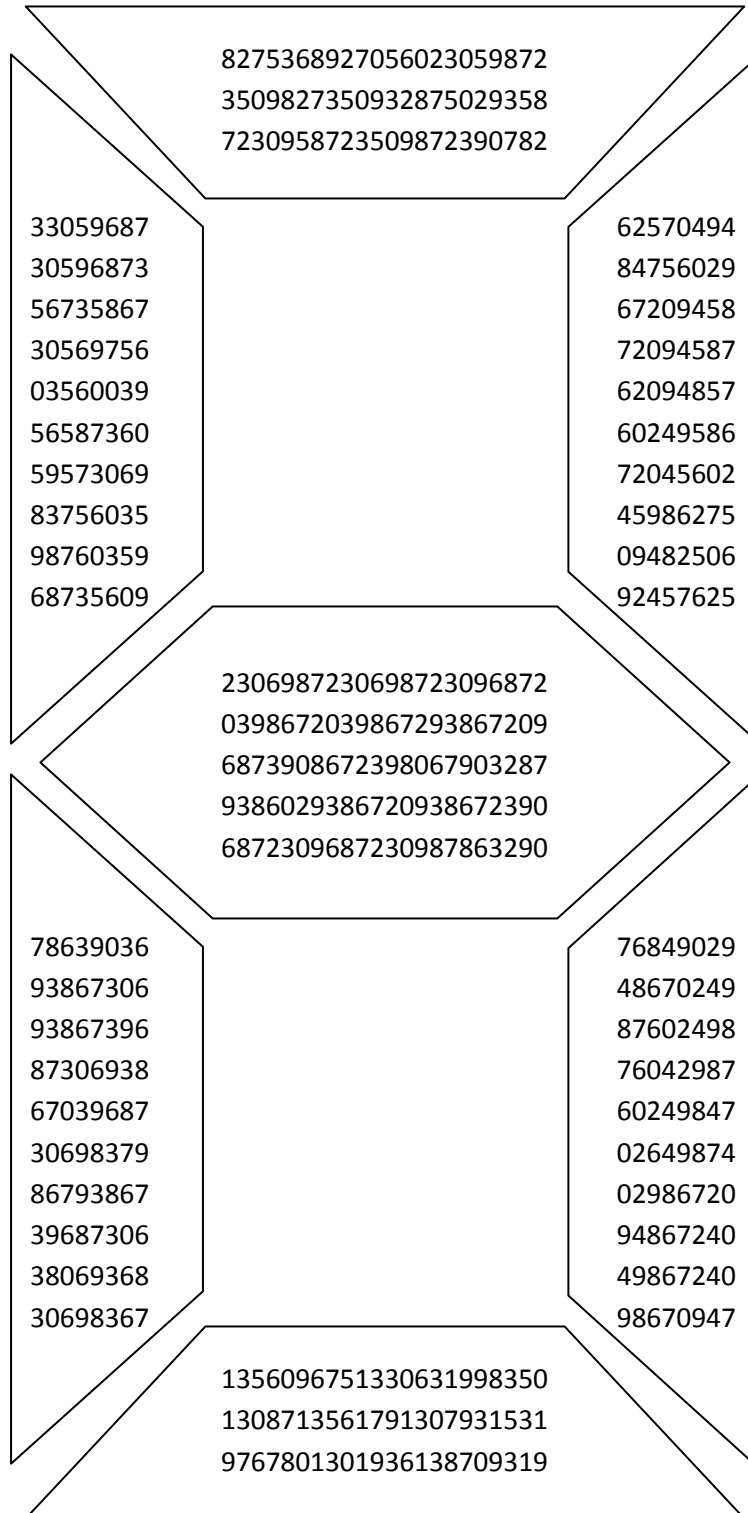
4. A *Nonogram* is a puzzle that is solved using provided numbers to draw a picture in a grid. The numbers above each column and to the left of each row represent the number of adjacent black squares in each black segment of that column or row. There must be at least one white square between each segment of black squares, but there can be more. For example, the numbers on the left represent a tulip. Identify the item in the picture on the right. The answer is one word that is not a compound word and that has twice as many consonants as vowels.

		1	8	8	6	9	26	9	6	8	8	1
			1	1	1	1		3	3	3	2	
								1	1	1	1	
1	1	1	█				█					█
2	3	2	█	█		█	█	█		█	█	
2	3	2	█	█		█	█	█		█	█	
9			█	█	█	█	█	█	█	█	█	
9			█	█	█	█	█	█	█	█	█	
9			█	█	█	█	█	█	█	█	█	
9			█	█	█	█	█	█	█	█	█	
9			█	█	█	█	█	█	█	█	█	
7				█	█	█	█	█	█	█		
3						█	█	█				
1						█						
1						█						
1						█						
1	2					█			█	█		
1	3					█			█	█	█	
4						█		█	█			
3						█		█				
2						█		█				
1						█						
1						█						
1						█						
1						█						
1						█						
1						█						
1						█						
1						█						
1						█						
11			█	█	█	█	█	█	█	█	█	█

		2	3	3	16	8	16	3	3	2
						12				
1										
1										
1										
1										
3										
3										
3										
3										
3										
1	1									
3										
3										
3										
3										
3										
3										
3										
5										
7										
9										
2	3	2								
1										

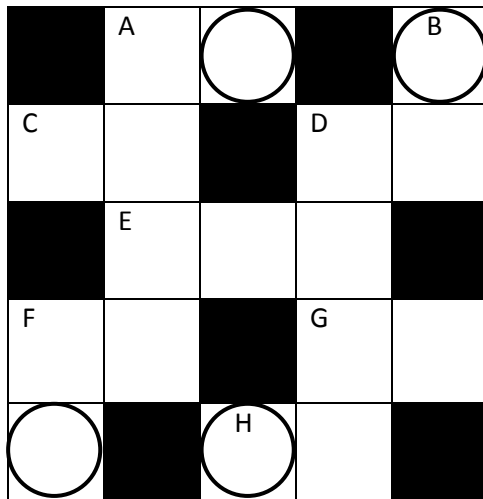
5. The answer to the following problem consists of a five-letter word.

Remember, sometimes what isn't there is more important than what is.



6. Say this fast: “Thud as tans lighter veils inn eye ear.”  
 (Hint: listen to someone else on your team say it aloud. Just do it quietly!)

7. Complete the cross-number puzzle using only the digits 1 through 9, one per box.  
 (Hint: start with a box that has only one possible value.)



Key	
1	A
2	C
3	E
4	I
5	M
6	O
7	R
8	S
9	T

**Across**

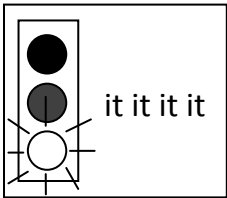
- A. A multiple of  $3^2$  (3 squared)
- C. A multiple of 11
- D. A perfect number, which is a whole number whose positive integer factors add up to two times itself.
- E. A palindrome (number where the reversed digits make the same number) where the sum of the digits is a power of 2 (1, 2, 4, 8, 16, ...)
- F. A number whose prime factorization is  $2^3 \cdot 11$

- G. The largest two-digit prime number.
- H. A number whose digits add up to 10

**Down**

- A. The digits of this number form a geometric sequence with a common multiple of 2
- B.  $(102 - x)(102 + x) = 800$ . Find the value of  $x$ .
- D. The year it will be [E-Across] years from now
- F. This number is a perfect fourth power.

8. Think outside the box on what is inside the box.

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1                      4                      1                      2                      9                      11

9. Look carefully for something each line has in common:

You should lock your cupboard, or else all your gummy bears will disappear.  
 Did you hit your chin on the table? It seems as though you have a bruise.  
 Mountain glaciers are cold, but the snow-heap igloos that I build are colder.  
 The eye of the flea gleamed in the desert sunset as the cactus absorbed moisture.  
 Computers grab bits of data from hard drives and load them into memory.  
 Children yearn for brand new toys, while parents simply want immediate silence.  
 Now listen up! You must finish this test very soon. Do not run out of time!  
 The VIP erred on the side of caution as he traveled with his armed caravan.  
 I can tell you the answer, but then I would have to kill you. Good luck!

10. Can you decipher this ancient tablet?

