



Knights of Pi Math Tournament – March 17<sup>th</sup>, 2018

## Mental Math 7th/8th

### Person 1

1	What is the remainder of 108 divided by 7?
2	What is the difference between the largest 2-digit prime number and the smallest 2-digit prime number?
3	Evaluate 17 squared.
4	How many diagonals are in an octagon?
5	What is the least common multiple of 17 and 7?

### Person 2

1	How many distinct ways are there to rearrange the letters in the word A-L-G-E-B-R-A?
2	Evaluate 6845 plus 1326.
3	If two legs of a triangle are 4 and 7, how many possible integer lengths can the third leg have?
4	What is the volume of a sphere with radius 3?
5	Evaluate the cube root of 343.

### Person 3

1	Evaluate 6 factorial.
2	A dinner consists of 1 of 5 soups, 1 of 3 entrees, and 1 of 7 desserts. How many possible dinner combinations are there?
3	What is the slope of the line $3x + 4y = 10$ ?
4	If Peter has 100 dollars and his money doubles every day, how much money does he have after 3 days?
5	What is the area of an equilateral triangle with side length 2?

## Person 4

1	An airplane is cruising at 500 miles per hour. Assuming it has enough fuel, how long will it take to go around the Earth, whose circumference is 25000 miles?
2	4 of the 5 vertices in a pentagon have an angle measure of 100 degrees. What is the angle measure of the last vertex?
3	If $x + y = 10$ and $x - y = 4$ , evaluate $y$ .
4	Everyone in a room high-5s every other person in the room exactly once. If there are 10 people in the room, how many high-5s take place?
5	Evaluate 7 divided by 2 times the quantity of $3 - 11$ .