



Knights of Pi Math Tournament – Dec. 12, 2015
Potpourri 5th/6th

1	If a circle's area and circumference have the same value, what is the length of the diameter?
2	If I flip two pennies. What is the probability that I get at least 1 head?
3	I have red and blue marbles in my pocket. After I add 1 red marble to my pocket, I have twice as many red marbles as blue marbles. Then, after I take out 1 blue marble, there are three times as many red marbles as blue marbles. How many marbles total did I have at the beginning?
4	What is the largest integer that, when tripled 3 times consecutively, will be less than 3,000?
5	Newport Math Club needs to choose 4 people to represent them at the club fair. If there are 10 people in math club, how many ways are there to choose 4 people?
6	<p>A naughty student has put a pin on the teacher's chair. The teacher has eliminate the suspects down to Philip, Sean, and Chris. The teacher asked them who did it. They all answered but only the naughty student lied. Here are what they said.</p> <p>Philip: <i>Sean did it.</i> Sean: <i>I didn't do it, Chris did it.</i> Chris: <i>Neither I nor Philip did it.</i></p> <p>Who is the naughty student?</p>
7	Donald continually chooses numbers from 1 to 10, inclusive, with each having an equal probability. If he picks a number bigger than 5, he stops. What is the probability that he will stop after choosing a 7?
8	How many different arrangement are there of the word <i>random</i> if neither the starting nor ending letter is a consonant (not a vowel)?
9	In a group of fifty 6th graders, almost all of them like to play video games. In particular, they like to play Minecraft, League of Legends, and Dota 2. There are 10 kids who like to play Dota 2, 25 that like League of Legends, and 35 that like Minecraft. Furthermore, there are 3 kids that like Dota 2 and League of Legends, 13 kids who like League of legends and Minecraft, 8 kids who like Dota 2 and Minecraft, and 2 kids who like all three. How many kids don't like any of the three?
10	If a , b are both prime numbers and $a * b$ is nine more than $a + b$. What is the positive difference between a and b ?