



Knights of Pi Math Tournament – Mar. 17, 2018
 Probability & Potpourri 7th/8th

1	What is the probability of picking out a black card (spade or clover) from a standard deck of 52 cards and rolling exactly one even number out of a pair of standard dice at the same time?
2	Andy wants to find Michael, who's gone missing. If Andy has a $\frac{2}{3}$ chance of finding Michael on any select day, what is the chance that Andy will find Michael within 3 days?
3	Given the set of letters (N, H, S, M, A, T, H, C, L, U, B), what is the chance of selecting two random letters without replacement and having them both be a consonant, any letter other than A, E, I, O, or U?
4	The Newport Math Club has 24 members, 16 male and 8 female. The club needs to select a total of 5 members to represent them at a competition. How many ways can the club be represented at the competition if the team must include 3 male members and 2 female members?
5	Given that a coin will land on heads at least once, what is the probability that the coin will land on heads both times?
6	What is the second-smallest 4 digit palindrome that, when squared, produces another palindrome?
7	Alicia is taking a math test. She forgot to study, and has a good grade in the class, so she decides to guess all the answers. If the test has 10 problems, and Alicia has a $\frac{1}{4}$ chance of guessing a question correctly, what is the chance that she will get 4 problems correct? Express your answer in a decimal format rounded to the nearest thousandth.
8	A standard 6-sided dice is rolled 5 times. The number displayed at the top of each dice roll is added together. What is the probability that the resulting sum is either 5 or 30?
9	Michael is throwing darts at a dartboard. He has a 10% chance of hitting bullseye, 60% chance of hitting the dartboard but not the bullseye, and 30% chance of completely missing the dartboard. If Michael has 5 darts, and stops throwing after he hits the bullseye, what is the chance that Michael will stop throwing before he runs out of darts?
10	Johnston needs to decide what to wear. He has 4 different clean shirts, 3 different clean pairs of pants, 3 different ties, and 8 different pairs of socks. How many different outfits can Johnston wear?