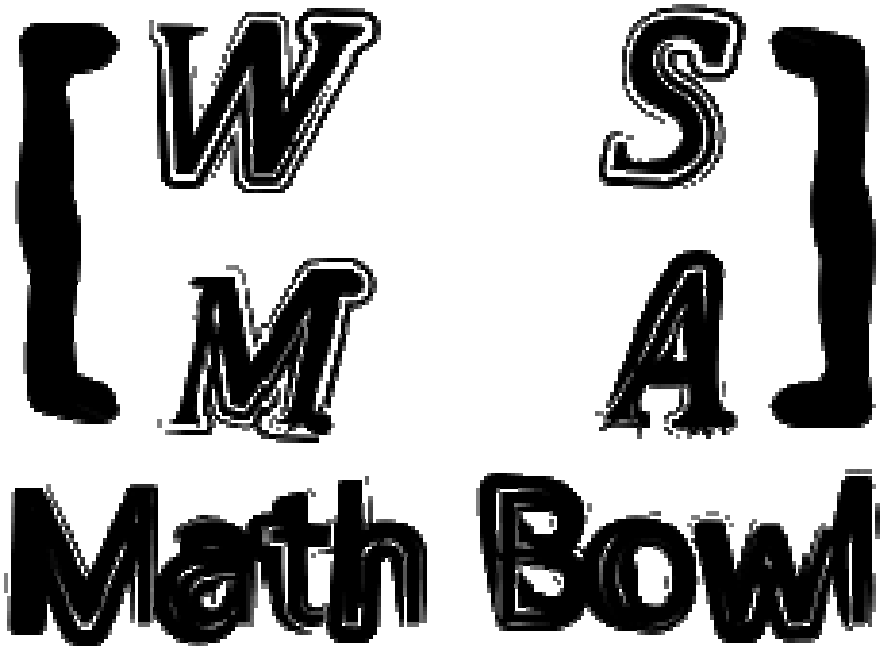

Elimination Round 1

2nd Annual WSMA Math Bowl
April 28, 2012

Problem 1

Steven is bored and randomly selects two websites to visit from his standard collection of 12. In how many ways can he visit first one website then another?

Problem 2

Bolun, Yicheng, and Carl are playing cutthroat on a dilapidated pool table. If there is a 25% chance that any one of them will injure themselves on a loose board on any one shot, after how many shots has the probability that an injury has occurred greater than 90%?

Problem 3

If Kevin drinks three pints of orange juice every weekday and two pints on Saturdays and Sundays, how many gallons of orange juice will he drink in seven weeks? There are 8 pints to a gallon.

Problem 4

Hansen bought 6 donuts at a price of $6 per dozen. He then ate one and sold the rest for $1 apiece. How much profit did he make?

Problem 5

Nine science students are playing Frisbee. They randomly divide up into two teams of 4 and 5 people each, respectively. What is the probability that roommates Susan and Sophia end up on the team of 5?

Problem 6

If there is a 50% chance that Hansen will notice that his mouse is missing with each elapsed minute, after how many minutes is the probability that Hansen has noticed his mouse is missing greater than 90%?

Problem 7

Susan, Sophia and Sarah are tossing a Frisbee around in a triangle. The distance between each pair of girls is a whole number. If the distance between Susan and Sophia is 21 feet and the distance between Sophia and Sarah is 17 feet, what is the difference between the greatest and least possible distances between Sarah and Susan?

Problem 8

The probability that Dyaniel will catch a Frisbee is an inverse relationship with his distance from the thrower. If there is a 100% chance that he will catch the Frisbee at a distance of one yard, what is the probability that he will catch the Frisbee at a distance of 36 FEET? Express your answer as a percent to the nearest hundredth.

Problem 9

The quality of bagels is an inverse relationship with distance to New York City. If the quality of bagels in Stony Brook, 60 miles east of NYC, is 1, what is the ratio of the bagel quality in Great Neck (20 miles) to the bagel quality in Cold Spring Harbor (36 miles away)? Express your answer as a common fraction.

Problem 10

Daniel will eat one serving of white stuff each day for 5 days. His options are: vanilla ice cream, marshmallows, alfredo sauce (with pasta), and cream cheese (with a bagel). If he does not want to eat the same stuff on consecutive days, how many ways are there for him to eat white stuff for 5 days? He does not necessarily need to eat all four types.

Problem 11

At 6:00 p.m. in California, it is 9:00 p.m. in New York. If Daniel, who lives in New York, and Yicheng, who lives in California, chat for 2 hours and 47 minutes starting at 8:11 p.m. California time, and Daniel needs to get up at 6:30 a.m. the next day, how much sleep does Daniel get? Assume Daniel falls asleep immediately after finishing and wakes up with his alarm. Express your answer in hours and minutes.

Problem 12

Eve and Emily are folding paper cranes to decorate their dorm. If Eve can fold one paper crane in 3 minutes and Emily can fold one paper crane in 2 minutes, how many SECONDS will it take the two of them working together to fold 15 cranes?