

The Problem Solving Competition–December 2012

Problem A: Pulling Balls

There are 7 white balls and 3 red balls in a bag. On each turn, we remove a ball randomly from the bag and then place a new white ball back into the bag. Find the probability that it takes exactly 5 turns to remove all of the red balls from the bag. (On turn 5, we must pull the third red ball).

Problem B: Double Palindrome

Let abc represents a three digit number in base 10, with $a \geq c + 2$. Let $abc - cba = efg$. Evaluate $efg + gfe$ for all a, b, c as above.

Please submit your solutions to Dr. Huiya Yan at hyan@uwlax.edu, or 1013 Cowley Hall by January 31, 2013. Winners can get a certificate from American Society for Mathematics.