

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 6 – MARCH 2007
ROUND 6 ALG 2: PROBABILITY AND THE BINOMIAL THEOREM

ANSWERS

A) _____

B) _____

C) _____

- A) Uncle Sam has 5 red, 4 white and 6 blue flags. If three flags are selected without replacement, what is the probability that the three flags selected are the same color? Give your answer as a simplified fraction.

- B) One of the terms in the expansion of $\left(x^{2/3} + \frac{1}{2x^{3/2}}\right)^{16}$ is kx^2 , where k is a constant. Determine the value of k .

- C) What is the probability that a permutation of the nonzero digits 1 ... 9 will begin with a non-prime OR end with a prime?

Three such permutations are 473218569, 732186945 and 432185697

Note: The digit 1 is not prime.