

University of South Carolina
Math 170: Finite Mathematics
Section 006
Spring 2012

Test 2

Please write *only* your name on the test sheet.

Place all work and answers on the blank sheets provided.

1. A student must choose whether to submit a writing assignment or a reading assignment (but not both). A writing assignment can be on any of three topics and must be either original research or a survey. For a reading assignment, the student must read one biography and one essay. There are three biographies and five essays from which to choose. How many different assignments are possible?
2. Flip three indistinguishable coins simultaneously. What is the probability the result is two heads and one tail?
3. In a 1987 survey of married couples, 95% of all husbands were employed. Of all employed husbands, 71% of their wives were also employed. In every couple, at least one of the husband or wife was employed. What is the probability that the husband of an employed woman is also employed?
4. You have six tiles labeled A, B, C, D, E, and F. What is the probability that a random four-letter word made from these tiles does not begin with "AB"? (Hint: The complementary event is easier to analyze.)
5. A bag contains six red marbles, five blue marbles, and four yellow marbles. (All marbles are distinguishable.) How many sets of five marbles contain exactly one red marble or exactly two blue marbles?
6. Prove the following statement. (Hint: Try a proof by contrapositive.)
If $xy + x$ is even, then x is even or y is odd.