

CSCI 1323 (Discrete Structures), Spring 2006

Quiz 5 Solution

1. (5 points) Acme Marble Company makes marbles in 12 different colors. How many different ways are there to select a box of 20 marbles, assuming all we care about is the colors of the marbles and not the order in which they're chosen?

(You may write your answer in the form of an expression, e.g., $30 \cdot 76$, or $4!$, or in terms of the permutation and combination functions defined in chapter 3, e.g., $P(4, 2)$ or $C(16, 1)$.)

Solution: $C(20 + 12 - 1, 20)$ (using the formula for combinations with repetition allowed)

2. (5 points) If you roll two fair dice, what is the probability that the sum of the values shown on the two dice is greater than or equal to 10 *and* the values are different (for example, not both six)?

Solution: $4/36 = 1/9$: There are 36 elements in the sample space, and 4 of them meet the stated criteria.