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Finite Mathematics (Math 10120), Fall 2020
Quiz 2, Friday, September 11, 2020

1. A bag contains 5 green marbles, 4 red marbles and 3 white marbles. two marbles are chosen at random from this bag. What is the probability that they have the same color? Please write your answer as a number (e.g. instead of $C(7, 2)$ you would write 21). Please put your answer in the indicated box.

$$P(\text{both same color}) = \frac{n(\text{both same color})}{n(\text{choose 2 marbles})} = \frac{C(5, 2) + C(4, 2) + C(3, 2)}{C(12, 2)}$$
$$= \frac{10 + 6 + 3}{66} = \frac{19}{66}$$

Answer to #1:

19/66

2. Claire flips a coin five times. What is the probability that exactly three of the flips show Heads? You can use our usual notation ($C(n, r)$, $P(n, r)$, or exponents) in your answer, or you can give a numerical answer.

$$P(\text{exactly 3 heads}) = \frac{n(\text{exactly 3 heads})}{n(\text{total outcomes})} = \frac{C(5, 3)}{2^5} = \frac{10}{32} = \frac{5}{16}$$

Answer to #2:

$$\frac{C(5, 3)}{2^5} = \frac{5}{16}$$