

This quiz covers material from 6.4, 7.1, and 7.2. Show your work. It is acceptable if you set up but do not compute the answers.

1. (2 points) For the 4th of July holiday, a roadside stand sells 8 types of fireworks and 6 different sets of decorations. If you decide to buy 4 types of fireworks and 2 different sets of decorations, how many ways can you do this?

Answer:

$$C(8, 4) \cdot C(6, 2)$$

2. (2 points) Find the number of distinguishable permutations that can be formed from the letters of the word POPCORN.

Answer:

$$\begin{array}{c|c} \text{P} & 2 \\ \text{O} & 2 \\ \text{C} & 1 \\ \text{R} & 1 \\ \text{N} & 1 \end{array} \quad \frac{7!}{2! \cdot 2!}$$

3. (2 points) An experiment consists of tossing a fair coin three times and observing the total number of tails flipped. Describe an appropriate sample space for this experiment.

Answer:

$$S = \{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\}$$

4. (2 points) Set up a probability distribution table for the events of the sample space in problem 3.

Answer:

t	$P(T = t)$
0	$\frac{1}{6}$
1	$\frac{1}{3}$
2	$\frac{1}{3}$
3	$\frac{1}{6}$