

Instructions: Show all work. Use exact answers, unless specifically asked to round.

1. Suppose 11 children are running the 100-meter dash. How many ways can the top four finishers be ordered?

$$11P3 = 990$$

2. A raffle has 100 tickets sold and 5 people can win the same door prize. How many different ways can those prizes be awarded?

$$100C5 = 75,287,520$$

3. A coin is tossed and a 10-sided dice is rolled.
a. What is the chance that a head **and** 5 is rolled?

$$\frac{1}{2} \cdot \frac{1}{10} = \frac{1}{20}$$

- b. What is the chance that either a head **or** a 5 are rolled?

$$\frac{1}{2} + \frac{1}{10} - \frac{1}{20} = \frac{11}{20}$$