

10.4 Compound Event

EQ: How can you find the number of possible outcomes of one or more events?

Sample Space: all possible outcomes of one or more events.

Fundamental Counting Principle: a way of finding the total possible outcomes.

The principle states... Event M has m possible outcomes. Event N has n possible outcomes. The total number of outcomes of M followed by N is $m \times n$.

* multiply the outcomes of each event *
Compound Event: two or more events. Probability is the ratio of favorable outcomes to possible outcomes.

Example 1: Sample Space. How many different pizzas are possible?

Crust
Thick
Thin

Style
Pepperoni
Veggie
cheese

Thin $\begin{cases} \rightarrow$ pepperoni 1
 \rightarrow Veggie 2
 \rightarrow cheese 3

Thick $\begin{cases} \rightarrow$ pepperoni 4
 \rightarrow Veggie 5
 \rightarrow cheese 6

Sample Space is 6 different outcomes

Example 2: Fundamental Counting Principle.
Find the number of possible outcomes of rolling a die and flipping a coin.

Coin
2 outcomes

Die
6 outcomes

$$2 \times 6 = 12 \text{ outcomes}$$