

# 15.4

## Compound Events

### Do Now

1. An event has a theoretical probability of 0.5. What does this mean?
2. Describe an event that has a theoretical probability of  $\frac{1}{4}$ .
3. A pollster surveys randomly selected individuals about an upcoming election. Do you think the pollster will use experimental probability or theoretical probability to make predictions? Explain.

### Learning Target:

- I can use tree diagrams, tables, or a formula to find the number of possible outcomes.
- I can find probabilities of compound events.

### Key Vocabulary & Idea:

#### SAMPLE SPACE

The \_\_\_\_\_ of all \_\_\_\_\_ of \_\_\_\_ or \_\_\_\_\_  
\_\_\_\_\_.

You can use \_\_\_\_\_ and \_\_\_\_\_ to find  
the sample space of 2 or more events.

### Finding a Sample Space

You randomly choose a crust and style of pizza. Find the sample space. How many different pizzas are possible?

Use a tree diagram to find the sample space.

Crust

Style

Outcome



## Finding a Sample Space

### Practice

The pizza shop adds a deep dish crust. Find the sample space. How many pizzas are possible?

*Crust*

*Style*

*Outcome*

### Key Vocabulary & Idea:




## **Fundamental Counting Principle**

Another way to find the \_\_\_\_\_ of  
\_\_\_\_\_.

An event M has  $m$  possible outcomes. An event N has  $n$  possible outcomes. the total number of outcomes of event M followed by event N is  $m \times n$ .

## Finding the Total Number of Possible Outcomes

Find the total number of possible outcomes of rolling a number cube and flipping a coin.

	1	2	3	4	5	6	
							
							

## Finding the Total Number of Possible Outcomes

### Practice

What is the probability of rolling at most 4 and flipping heads?



## Finding the Total Number of Possible Outcomes



How many different outfits can you make from the T-shirts, jeans, and shoes in the closet?

Use the Fundamental Counting Principle. Identify the number of possible outcomes for each event.

## Finding the Total Number of Possible Outcomes

### Practice

How many different outfits can you make from 4 T-shirts, 5 pairs of jeans, and 5 pairs of shoes?

### Key Vocabulary & Idea:

### **Compound Event**

A compound event consists of \_\_\_\_ or \_\_\_\_.

As with a single event, the probability of a compound event is the \_\_\_\_\_ of the \_\_\_\_\_ of \_\_\_\_\_ to the \_\_\_\_\_ of \_\_\_\_\_.

## Finding the Probability of a Compound Event:

What is the probability (from a previous example) of rolling a number greater than 4 and flipping tails??

How many favorable outcomes in the sample space?

	1	2	3	4	5	6
Heads						
Tails						



Finding the Probability of a Compound Event:

Practice

- 1) You roll 2 number cubes. What is the probability of rolling double threes?

Finding the Probability of a Compound Event:

Practice

- 2) You flip three nickels. What is the probability of flipping two heads and one tails? Use a tree diagram to find the sample space.

*First Flip*

*Second Flip*

*Third Flip*

*Outcome*

Finding the Probability of a Compound Event:

Practice

- 3) You flip three nickels. What is the probability of flipping at least two tails?

Use a tree diagram to find the sample space.