# 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 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 o	r
•			
You can use	and		to find
the sample space	of 2 or more event	S.	

# 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:

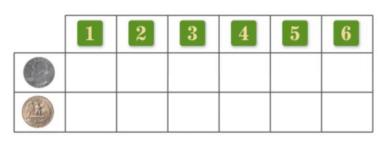
# **Fundamental Counting Principle**

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.





#### 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

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

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#### 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	<b>5</b>	<b>[6</b> ]



# **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.