By the end of this lesson you will be able to _____.

Example 1: Sundae Shoppe

Construct a tree diagram of the following ice cream choices: You can have vanilla, chocolate, or strawberry ice cream and you can have either hot fudge or caramel topping.

Choice #1   Choice #2

How can probability be represented?

Question: What is the probability that you will choose _____ and _____ _____?

Example 2: Swim Shop

You are buying swim trunks from a store. You have to choose a size, color, and style. You can choose between Small, Medium, Large for size, blue, pink, red, brown for color, and patterned or solid for style. Draw a tree diagram to count the number of choices.

Decision #1

Decision #2

Decision #3

How many outcomes do you have with the first decision? _____

How many outcomes do you have when you change your mind on the first decision? _____

How many outcomes do you have when you change your mind again on the first decision? _____

How many total outcomes are there in this situation? _____

continue… Example: Swim Shop

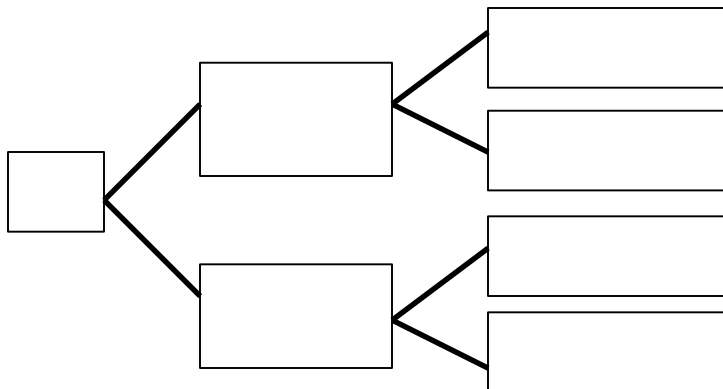Question: What is the probability that you will choose a _____?

Question: What is the probability that you will choose a _____?

Example 3: Soccer Game

You are off to soccer, and love being the Goalkeeper, but that depends who is the Coach today.

- With Coach Sam the probability of being Goalkeeper is _____.
- With Coach Alex the probability of being Goalkeeper is _____.
- Sam is Coach more often with a probability of _____.

So, what is the probability you will be a Goalkeeper today?

What is the probability that if Sam is coach, you will be goalie? _____

What is the probability that if Alex is coach, you will be goalie? _____

What does the probability of Sam being coach and *not* being the coach add up to? _____

What does the probability of you being goalie and *not* being the goalie add up to? _____

What is the probability that you will be the goalie today? _____

Example 4: Don't Be Late

Jack wakes up late on average 3 day in every 5.

- If he wakes up late the probability that he'll be late for school is _____.
- If he wakes up on time, the probability that he'll be late for school is _____.

So, what is the probability you will Jack will get to school on time?
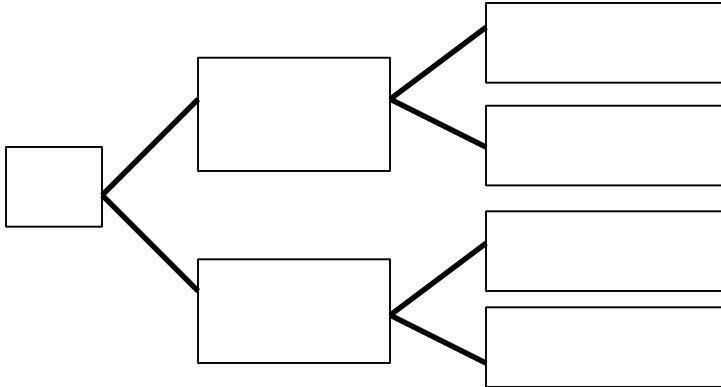
What is the probability that if Jack wakes up late he will be on time? _____

What is the probability that if Jack wakes up on time he will be late? _____

What does the probability of Jack waking up late and waking on time need to add up to? _____

What does the probability of Jack being tardy and not tardy need to add up to? _____

What is the probability that Jack will get to school on time? _____

Your Turn to Practice. [Fill in the missing information using the video.]

Create a tree diagram to help you solve each probability problem.

1) You have three tops in the colors green, blue, and orange. You also have 4 bottoms in the colors brown, black, white and grey. What is the probability that you will choose a _____ _____?

2) Two dice are thrown together. What is the probability that one die will show an _____ number and the other die will show a _____?

3) Justine's favorite meal is pasta followed by ice cream for dessert. Justine's mom cooks pasta 35% of the time.
   - If she cooks pasta the probability Justine gets ice cream is _____.
   - If she doesn't cook pasta, the probability that Justine gets ice cream is _____.
   What is the probability that Justine will get ice cream for dessert?