

Name: _____

Date: _____

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Classwork 9.6

Compound Events (Tree Diagrams)

Aim: How do you find the probability of a compound event using a tree diagram and the FCP?

Example 1: An ice-cream shop has the choice of 3 flavors of ice-cream (vanilla, strawberry or chocolate). Customers also have a choice of 2 types of cones (sugar or waffle). Each combination is equally likely. Find the probability of choosing an ice-cream cone at random and getting a sugar cone with vanilla ice-cream.

a) Complete the tree-diagram to find the sample space for the compound event.

b) List the sample space. [Trace each branch; this is one possible outcome.]

c) How many outcomes are in the sample space? _____

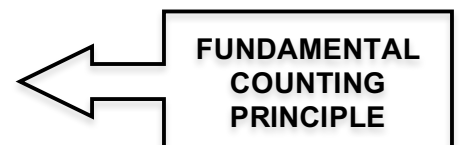
d) What is the probability of choosing a sugar cone with vanilla ice-cream? _____

e) $P(\text{choosing a chocolate ice-cream cone}) =$ _____

f) $P(\text{choosing a waffle cone with strawberry or vanilla ice-cream}) =$ _____

Check It!

How can you find the number of possible outcomes without making a tree-diagram or table?



Example 2: Tommy's Pizza offers two different size pizzas; small and large. Customers also have a choice of toppings: cheese, mushroom and pepperoni. Each combination is equally likely.

1) Make a tree diagram.

2) List the sample space.

3) Find the probability of the following.

a) $P(\text{small}) = \underline{\hspace{2cm}}$

b) $P(\text{pepperoni}) = \underline{\hspace{2cm}}$

c) $P(\text{large, mushroom}) = \underline{\hspace{2cm}}$

d) $P(\text{cheese or mushroom}) = \underline{\hspace{2cm}}$

4) If Tommy's pizza starts to offer 3 different sizes and 5 toppings, how many combinations of one size and one topping pizzas are possible? [**Hint: Do not make a tree diagram.**]

Try it!

Ice cream sundaes come in 4 flavors, vanilla, chocolate, strawberry and mint chip with 2 possible toppings, fudge or marshmallow.

a) Create a tree diagram.

b) List the sample space.

c) Find the probability of having an ice cream sundae with strawberry ice cream and marshmallow.

d) Find the probability of having an ice cream sundae with fudge.

2) If a deli offers three breads, 6 meats and 4 toppings, how many outcomes are possible?

Challenge: If a coin is flipped three times, how many outcomes are possible?