

Name: _____

7R

Date: _____

Classwork 9.8

Dependent Events

Aim: How do you find the probability of dependent events?

Recall:

A compound event consists of 2 or more separate events.

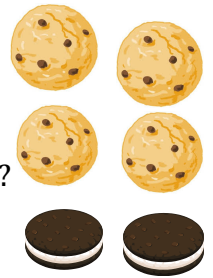
Events are independent when one event *does not affect* the other. (with replacement)

Dependent Events: Events are dependent when one event *does affect* the other. (without replacement)

Example 1:

There are 4 chocolate chip cookies and 2 Oreos in a container. If you choose a cookie at random, eat it (do not replace it), and then randomly select a second cookie, what is the probability of choosing an Oreo cookie and then a chocolate chip cookie?

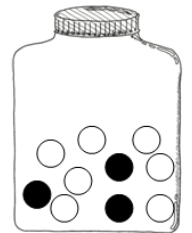
P (Oreo and chocolate chip) =



Try It!

A jar contains 7 white marbles and 3 black marbles. You draw a marble at random, do not replace it, and then draw another marble. Find the probability of getting a black and then a white marble.

P (black, white) =



Example 2:

There are 4 chocolate chip cookies and 2 Oreos in a container. If you choose a cookie at random, eat it (do not replace it), and then randomly select a second cookie, what is the probability of choosing a chocolate chip cookie and then another chocolate chip cookie?

P (chocolate chip, chocolate chip) =

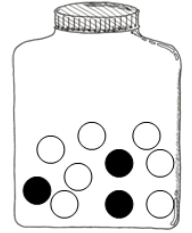


Notice how the **denominator keeps decreasing by 1** when the item is **NOT replaced!**

Notice how the **numerator also decreases by 1**, if you are **choosing the same color!**

Try It!

A jar contains 7 white marbles and 3 black marbles. You draw a marble at random, do not replace it, and then draw another marble. Find the probability that both marbles are white.



$P(\text{white and white}) =$

Sum It Up!

What is the difference between independent and dependent events?

On Your Own!

- 1) A jar contains 2 yellow marbles, 3 red marbles and 5 blue marbles. You draw a marble at random, do not replace it, and then draw another marble.

$P(\text{yellow, blue}) =$

- 2) A bag contains 2 A's, 3 B's and 1 C. You choose a letter from the bag at random, do not replace it, and then choose a second letter. Find the probability of getting an A and then a C.

$P(A, C) =$

- 3) A bag contains 1 pink, 1 blue, 1 green, 1 orange, 1 purple and 2 yellow pompoms. You pick a pompom out of the bag, you do not replace it, and then draw another one.

$P(\text{yellow, yellow}) =$