**Compound Events**

A **compound event** is an event made up of two or more simple events. We will learn about two different types of events in this packet.

**Mutually Exclusive Events**

These are events that cannot both occur in the same trial of an experiment.

For example, “rolling a 1” and “rolling a 2” on the same roll of a number dice are mutually exclusive events.

***For two mutually exclusive events A and B:* P(A or B) = P(A) + P(B)**

***Example 1***

A fast food restaurant puts one label on each of their drink cups: “free drink”, “free fries”, or “try again”. A drink has a  probability of being labeled “free drink” and a  probability of being labeled “free fries”.

1. Explain why the events “free drink” and “free fries” are mutually exclusive.

*Answer:* Each drink cup only has one label applied to it.

1. What is the probability that a bottle cap is labeled “free drink” or “free fries”?

*Answer:* P(free drink or free fries) = P(free drink) + P(free fries)

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***Practice Problem #1***

A bag contains 20 popsicles: 7 blue, 4 red, 5 green, and 4 yellow.

1. Explain why the events “grabbing a red popsicle” and “grabbing a green popsicle” are mutually exclusive events.
2. What is the probability of grabbing a blue popsicle or grabbing a green popsicle?

**Inclusive Events**

These are events that have one or more outcomes in common.

For example, “rolling an even number” and “rolling a prime number” are inclusive events because the number 2 is *both* prime and even.

***For two inclusive events A and B:* P(A or B) = P(A) + P(B) – P(A and B)**

***Example 1***

Find the probability of rolling a number dice and “rolling a 5” or “rolling an odd number”.

P(5 or odd) = P(5) + P(odd) – P(5 and odd)

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Explain why “rolling a 5” and “rolling an odd number” are inclusive events.

***Practice Problem #1***

At the local high school there are 48 teachers, 20 of which are male. Of the 20 male teachers 4 teach science.  of all the teachers teach science. What is the probability that a teacher is a male or teaches science?

P(male or teaches science) = P( ) + P( ) – P( )

Come show me your answer so I know you’re on the right track!

**Assignment: Practice B Worksheet + pg 822 #2-10, 12-18**