

# 4.1.3 Independent & Dependent Events



By the end of this lesson, I will be able to answer the following questions...

1. How do I determine if events are Independent or Dependent?
2. How do I calculate the probability of independent events?

# Vocabulary

1. Probability of Independent Events happening  $P(A \cap B) = P(A) \cdot P(B)$

2. **Independent Events:** The occurrence of event happening **has no impact** of the other event happening.

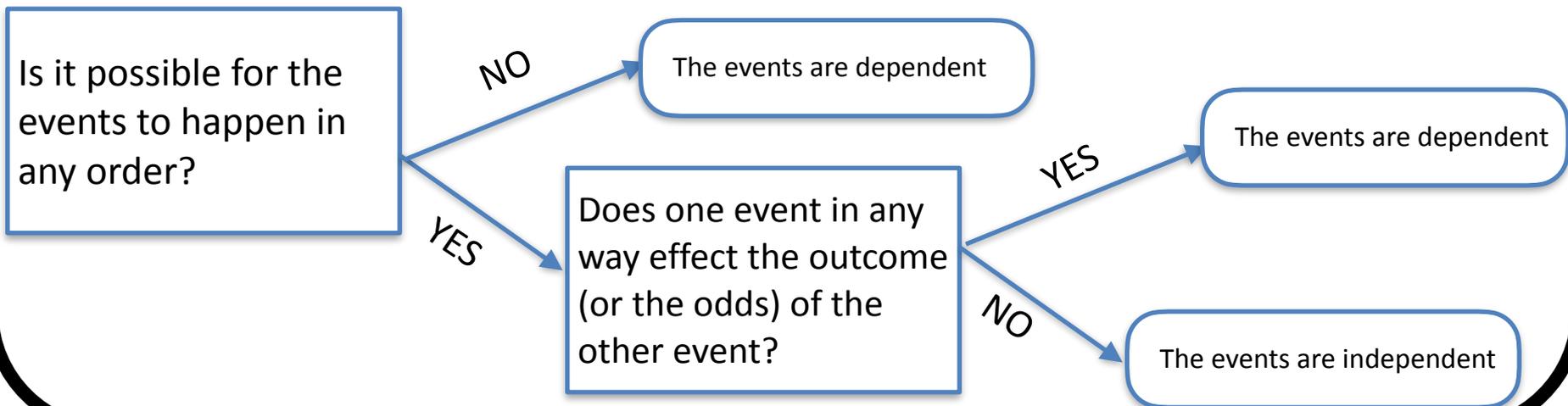
Example: It rains today and I eat pizza for dinner.

I park my car illegally and my friend buys a Nintendo Switch.

3. **Dependent Event:** The outcome of one event **has an impact** of the outcome of the other event.

Example: It rains today and my sport gets cancelled.

I park my car illegally and I get a parking ticket.



Prerequisite Skills with Practice

**CANDY ACTIVITY**



Landen owns a delicatessen. He collected data on sales of his most popular sandwiches for one week and recorded it in the table below.

Each of the following statements describes a pair of events. For each statement, determine if the events seem to be independent based on the data in the table.

**A random customer orders Landen's club sandwich on country white bread.**

**A random customer orders the roasted chicken sandwich on whole wheat bread.**

Bread choice	Sandwich choice				Total
	Landen's club	Turkey melt	Roasted chicken	Veggie delight	
Country white	44	25	25	8	102
Whole wheat	24	28	26	34	112
Sourdough	24	27	24	31	106
<b>Total</b>	92	80	75	73	320



Gamestop hired a consultant That surveyed 200 people who played four particular video games.

The survey indicated the following

- 80% liked the game **2K19 Basketball**.
- 60% liked the game **Eight-Ball Pool**.
- 45% liked the game **League of Legends AND Eight-Ball Pool**.
- 56% liked the game **Call of Duty: Infinite Warfare AND 2K19 Basketball**

Assume all “liking” of each game is INDEPENDENT.

What is the Probability someone liked **2K18 Basketball AND Eight-Ball Pool?**

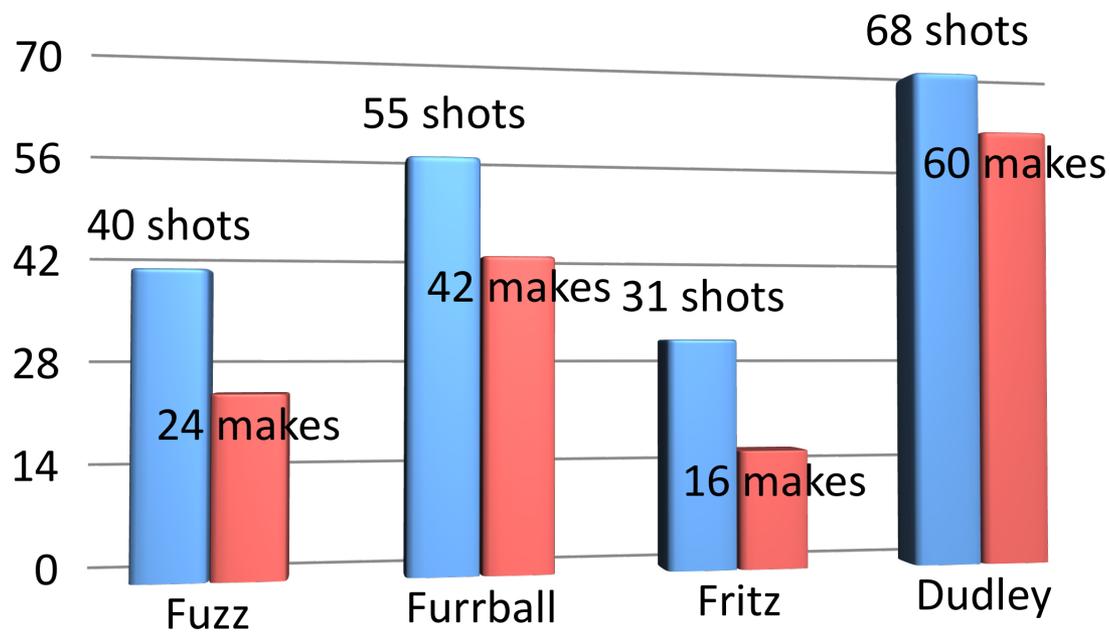
What is the Probability someone liked ONLY **League of Legends?**

What is the Probability someone liked ONLY **Call of Duty: Infinite Warfare?**

What is the Probability someone liked **League of Legends AND Call of Duty: Infinite Warfare?**

A hamster basketball team has compiled the following stats for the year. Assuming that making baskets are independent events, what is probability of the following?

- Fuzz AND Furrball both make their shots.
- Fuzz OR Furrball makes a shot.
- Fritz AND Dudley both miss their shots.
- Fritz or Dudley miss a shot



# THE END



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