

# Bayes Theorem: Takeaways

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## Concepts

- Independence, dependence, and exclusivity describe the relationship between events (two or more events), and they have different mathematical meanings:
- If two events are **exhaustive**, it means they make up the whole sample space .
- **The law of total probability** can be expressed mathematically as:
- The law of total probability is often written using the summation sign :
- For any events A and B, we can use **Bayes' theorem** to calculate  $P(A|B)$ :
- $P(A|B)$  is the **posterior probability** of A *after* B happens ("posterior" means "after").  $P(A)$  is the **prior probability** of A *before* B happens ("prior" means "before").

## Resources

- [An intuitive approach to understanding Bayes' theorem](#)
- [False positives, false negatives, and Bayes' theorem](#)



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