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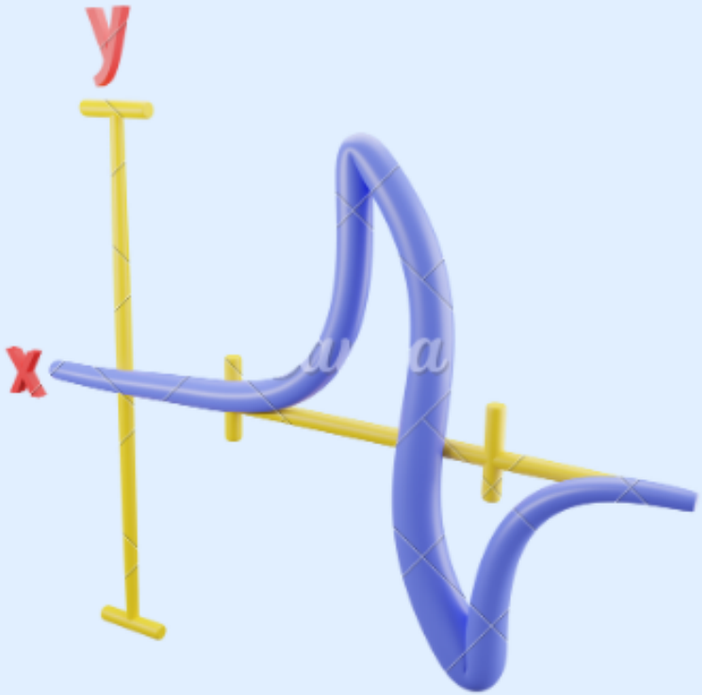
Calculus
-AI

Let’s Start



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Contents

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What is Calculus?

Calculus is a branch of mathematics that deals with how things change. It provides tools to analyze and describe the changing rates of things and the accumulation of quantities. At its core, calculus is about two main ideas:

1. Differentiation (dealing with rates of change or slopes)
2. Integration (dealing with accumulation or areas under curves)

It is foundational in various fields such as physics, engineering, economics, and machine learning, helping to solve problems involving motion, growth, optimization, and more.

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What is Calculus?

The Two Main Branches of Calculus

1. Differential Calculus (Differentiation)

Differential calculus focuses on the concept of the derivative, which measures how a function changes as its input changes. It helps answer questions like:

- How fast is something changing at a given moment?
- What is the slope of the curve at a particular point?

Key Concept: The derivative tells you the rate of change or the slope of the curve at a specific point.

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What is Calculus?

The Two Main Branches of Calculus

2. Integral Calculus (Integration)

Integral calculus focuses on the concept of the integral, which measures the accumulation of quantities, such as areas under curves or the total distance traveled. It answers questions like:

- **How much has something accumulated over time?**
- **What is the total area under a curve?**
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Key Concept: The integral calculates the total accumulation or area under a curve over a range of inputs.