

Summary

SL - Chapter 13 - Further Calculus

Subject	Year	Start date	Duration
Mathematics: analysis and approaches	IB2	Week 3, October	4 weeks

Course Part

Description

In this unit you will explore the derivatives of sine and cosine functions, applications of derivatives and kinematics

Inquiry & Purpose

Inquiry / Higher Order Questions

Type	Inquiry Questions
Skills-based	When is it appropriate to use the substitution method of integration?
Concept-based	Is displacement the same as distance travelled? Why?

Curriculum

Aims

Develop a curiosity and enjoyment of mathematics, and appreciate its elegance and power

Objectives

Problem solving: Recall, select and use their knowledge of mathematical skills, results and models in both abstract and real-world contexts to solve problems.

Syllabus Content

Topic 5: Calculus

SL Content

SL 5.6

Derivative of x^n ($n \in \mathbb{Q}$), $\sin x$, $\cos x$, e^x and $\ln x$

Differentiation of a sum and a multiple of these functions.

SL 5.9

Kinematic problems involving displacement s , velocity v , acceleration a and total distance travelled.

SL 5.10

Indefinite integral of x^n ($n \in \mathbb{Q}$), $\sin x$, $\cos x$, $\frac{1}{x}$ and e^x

The composites of any of these with the linear function $ax + b$.

Integration by inspection (reverse chain rule) or by substitution for expressions of the form: $\int kg'(x)f(g(x))dx$

ATL Skills

Approaches to Learning



Thinking

- In this unit, we will

reward a new personal understanding, solution or approach to an issue

set students a task which required higher-order thinking skills (such as analysis or evaluation)

help students to make their thinking more visible (for example, by using a strategy such as a thinking routine)

ask questions that required the use of knowledge from a different subject from the one you are teaching



Developing IB Learners

Learner Profile



Inquirers



Knowledgeable



Thinkers



Reflective