

Chapter notes: 13 Basic integration and its applications

Overview

This chapter starts with the idea of ‘anti-differentiation’ and its rules, then moves on to definite integration before interpreting this in the context of areas. It needs approximately eight hours of teaching time.

Introductory problem

This problem presents an example of a physical situation when the areas under a curve are important. You might like to ask students about other such situations they can think of from their studies. The worked solution is given at the end of the chapter, page 417; the idea being that students should be able to answer the question using the methods covered in the chapter.

13A-D

There are no specific teacher notes for these sections.

13E Integrating trigonometric functions, p400

Hints for grade 7 questions:

3. Use an identity for $\cos 2x$, and the difference of two squares.

13F Finding the equation of a curve, p401

Hints for grade 7 questions:

4. The gradient of the normal is $\frac{-1}{\frac{dy}{dx}}$. Set up an equation to find $\frac{dy}{dx}$.

13G Definite integration, p404

The important emphasis here should be on using the graphical calculator effectively. Very strong students are often reluctant to do this.

13H Geometrical significance of definite integration, p406

There are no specific teacher notes for this section.

13I The area between two curves, p412

Hints for grade 7 questions:

8. Find the intersection point in terms of m .