

# Quadrature of the lunes

## Teacher notes

### Why use this resource?

This resource requires students to problem solve. It focuses on a problem of historical significance is accessible but also leads to a slightly startling observation about the relationship between the areas of two shapes.

The first two problems are accessible to all Y12 students requiring no more than GCSE knowledge. This is a useful problem for students to engage in mathematical thinking.

### Possible approach

A useful approach to this problem is as a “think, pair, share” activity.

- Think: Firstly, ask students to individually think about the problem. Some students may become stuck and you may wish to offer a hint but it is important that students should be allowed to become stuck and work through this as much as possible.
- Pair: After a suitable length of time, ask the students to discuss the problem in pairs comparing their different methods.
- Share: As a whole class, the students can discuss the problem.

It is possible to approach problems 1 and 2 as separate problems if you do not have time to complete the whole activity.

### Key questions

- What mathematical thinking have we done this lesson?

### Possible support

Are there any shapes in this diagram whose areas we can find?

### Possible extension

Extension activities are suggested in the task.

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A version of this resource has been featured on the [NRICH website](https://nrich.maths.org/). You might like to look at some students’ solutions that have been submitted there.