## Summing to one

## Why use this resource?

This thought-provoking introduction to logarithms allows students to get a feeling for how logarithms to different bases behave and how the laws of logarithms can be used. Students start with a single example and can then apply their knowledge to a more general situation.

## Possible approach

Used with mini-whiteboards, the first problem could be posed as "How many $\log _{27} 3$ s make 1 ?" first and then try $\log _{81} 3$. After checking students' understanding, Problem 2 could work well in pairs or groups of three.

## Key questions

- What are the rules of logarithms?
- Which rule of logarithms can we use to help here?
- Could we come to the same answer another way?


## Possible support

Encourage students to write down the rules of logarithms that they know. Can they use logic to come up with any missing rules?

## Possible extension

Students might go on to a fluency exercise such as Logarithm lattice or tackle the scaffolded task Proving the laws of logs.

A version of this resource has been featured on the NRICH website. You might like to look at some students' solutions that have been submitted there.

