

Staircase sequences revisited

Teacher notes

Why use this resource?

This task builds on the idea of continued fractions from [Staircase sequences](#). (Though it is not necessary that students should tackle this first, it may be beneficial.) By exploring which numbers can be given by continued fractions, students will consolidate their understanding of fractions, both numerical and algebraic, will practise manipulating expressions involving surds, and will gain insights into when continued fractions represent rational or irrational numbers.

Possible approaches

The two main questions are:

- Given a continued fraction, can you find the number that it represents?
- Given a number, can you write it as a continued fraction?

These could be explored through the structured use of the mini-questions to break the task down, or if your students are confident at attempting open problems, the mini-questions could just be used as support if students get stuck or are unsure what to do next.