

## The Congruent Number Problem

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We say a natural number  $n$  is congruent if it is the area of a right triangle whose sides all have rational length (including the hypotenuse). The congruent number problem is to identify exactly which numbers  $n$  are congruent.

Efforts to solve this problem made little headway for centuries. Significant progress towards a solution had to wait for a modern approach, by rephrasing the problem in terms of *elliptic curves*, and using the tools of algebraic geometry and number theory. Even still, the problem is not yet solved – it relates to a famous conjecture about elliptic curves that is still unresolved.