



Your Child's Maths Challenge

(Maths Mastery Academy Initial Assessment — Year 10 and above)

Many parents are proud of how well their child is doing in maths, but still worry they're not being fully challenged. When school feels too easy or repetitive, children may coast through... and lose the talent and confidence they once showed.

This short challenge is designed to stretch your child with real problem-solving. It tests how well they can apply their knowledge in unfamiliar situations, a skill essential for long-term success in maths competitions, exams, and top university pathways.

This page explains how to complete the assessment and what happens after submission.

Instructions

- **Show clear working and explanations.** Use words, diagrams, or structured steps.
- **Use rough paper first** if helpful, then write a clear final version.
- **Use lined or grid paper.** Space between questions is tight.
- **Time:** Allow 60–75 minutes. The last two questions are genuinely hard — partial progress with clear reasoning is still very valuable.

What to Do Next

1. **Complete the assessment.** Set aside 60–75 minutes in a quiet space.
2. **Submit it at mathsmasteryacademy.co.uk/talent/submit by scanning the QR code below.** Upload photos of your child's completed work, and we will send you their result.
3. **Get tailored feedback.** You'll receive personalised advice on their strengths, next steps, and whether they're ready to join the Maths Mastery Academy.

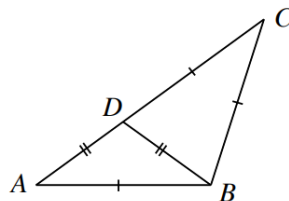
Submit Your Child's Work

Scan this QR code to submit your child's assessment.

Tap the camera on your phone and hold it over the code, or go to mathsmasteryacademy.co.uk/talent/submit. It takes two minutes.



1. In this figure ADC is a straight line and $AB = BC = CD$. Also, $DA = DB$. Find the size of $\angle BAC$.



2. A palindromic number is one which reads the same when its digits are reversed, for example 23832. What is the largest six-digit palindromic number which is exactly divisible by 15?
3. Solve the equation $5a - ab = 9b^2$, where a and b are positive integers.
4. A square $ABCD$ has side-length 2, and M is the midpoint of BC . The circle S inside the quadrilateral $AMCD$ touches the three sides AM , CD and DA . What is its radius?
5. Find four prime numbers less than 100 which are factors of $3^{32} - 2^{32}$.