Name that graph

Teacher notes

Why use this resource?

This resource prompts students to think about what information is needed to be able to identify an equation for a parabola directly from the graph.

Possible approach

Students should be encouraged to think about the three 'forms' of a quadratic equation that they may be familiar with: expanded form $(y = ax^2 + bx + c)$, fully factorised form $(y = a(x - d)(x - e))$; and completed square form $(y = a(x - f)^2 + g)$. They should continually reflect on the efficiency of their approach and whether they can be applied to a general parabola.

It is nice to highlight transformations of graphs as an effective approach for the blue parabola in this problem.

Key questions

Which approach to finding the equation was the most efficient? Is it the same approach for each example?

Possible support

Students could use Desmos (a graphing calculator) to check their solutions.

Possible extension

Which of these approaches would work best for cubic polynomials? Explain your thinking. Can any of these approaches be generalised for other polynomials.

A version of this resource has been featured on the NRICH website.