Odd or even or...

Teacher notes

Why use this resource?

In this activity students are asked to decide whether functions are odd or even or have some other kind of symmetry. As well as working with the graphs and equations of functions, there are opportunities to think about the effects of graph transformations.

This resource can be used as a follow-up to That's odd...or even.

Preparation

This is a card sort so these need to be prepared. If possible, provide mini-white boards so that students can sketch the graphs and draw in reflections and rotations of the graphs.

Possible approach

The warm-up asks students what they can say about symmetry in two diagrams, so this can be used to reveal what students know about odd and even functions. The card sort main task offers an opportunity to notice various features of odd and even functions, such as the powers involved, the nature of any asymptotes and any effects of transformations. These can be noticed from either the graphical or algebraic representations. The cards in the online version can be sorted on screen, which you may find easier in fullscreen mode.

Key questions

- How could/did you start to sort the cards?
- If you used the graphs, could you have used the equation? If you used the equation, could you have used the graphs?
- Which functions are easier to approach using the equations/graphs?

Possible support

Encourage students to think about the shapes of the graphs, even if they aren't familiar with the functions. Students could start by sorting cards into those which are symmetrical about the y-axis (even) and those that aren't. Then sort out those which have some other vertical line of symmetry. Then students could consider whether any of the graphs have rotational symmetry about the origin.

Possible extension

Ask students to devise a set of instructions for sorting these cards systematically into families based on types of symmetry. In doing this, they may reflect on the fact that being even or odd is a special type of symmetry. Can they sort in a way that has overlapping families to accommodate $f(x) = 0$?