Making inverse functions

Teacher notes

Why use this resource?

This resource takes students through the process of algebraic inversion of a function and provokes them to think about the significance of the domain of a function. We look at why a function must be one-to-one in order to have an inverse and consider some example functions to get a feel for how to restrict domains appropriately.

This can be used as a preparatory task before students take on resources such as Invertibles.

Preparation

Students might want to work at Forming functions—defining domains or Domain and range dominoes before tackling this resource.

You may need to prepare sets of cards for students to sort if using the third section of the resource. These are the same cards as are used in Gradient match, Choose your families and other resources.

Possible approach

The first section of this resource can be used as revision of work that most students probably did early on in secondary school. It can be displayed and worked through as a whole class or the printed version can be given to students to complete.

The second section, Defining domains, could be given to students to work through independently, or could be used as the basis for a teacher-led class discussion. The concepts can be quite hard to grasp but students will benefit from having an understanding of the need to make functions one-to-one and the choices we can make in restricting domains.

The third section uses the set of graph cards. Without any algebra, students are encouraged to think about domains that would make these functions invertible. This sorting activity can be done using the interactive page or using physical cards.

Key questions

- Why can I not make an inverse of a many-to-one function such as f?
- How can we change the domain of a function to make it one-to-one? Is there more than one way?

 Last updated 15-Sep-17

Possible extension

The resource Invertibles gives students opportunity to practise algebraic inversion and choice of restricted domains. It also looks at the graphs of a function and its inverse.

Inverse or not? applies these ideas to the specific case of trigonometric functions.