Inequality sets

Teacher notes

Why use this resource?

This resource encourages students to think flexibly about inequalities and reinforces how useful a graphical representation can be when working with inequalities. Students are asked to work backwards to find inequalities that fit the solution sets given, as well as working from an inequality to a solution set. There are also opportunities to think about what happens when functions have asymptotes and how this can impact inequalities and their solutions.

Preparation

You may want students to have their own copy of the table to fill in. You can print out the problem page here.

Possible approach

You may wish to show students the example, so they are clear on what they are expected to fill in for each column. Give them time to work through the problem before providing an opportunity to discuss any points arising from individual questions (examples can be found in the Solution) and some of the more general points raised in the Key questions below.

Set notation is used throughout, but you may wish to ask students to use interval notation as well, or instead.

Key questions

- Are there any cells that have more than one possible answer?
- What benefit can sketching a graph provide when solving inequalities?
- Why can't the solution set $0 < x \leq 1$ satisfy a quadratic inequality?

Possible support

If students are having difficulty with a particular row, encourage them to try another. They may find the later rows more familiar.

Possible extension

The Taking it further section asks students to solve an inequality involving modulus functions, and encourages them to think about the different ways it can be solved.