Proving the quadratic formula

Teacher notes

Why use this resource?

This resource provides a route for students to construct a derivation of the quadratic formula. The proof has been split into several statements and jumbled up. To prove the formula, students will need to put the cards in a sequence that makes a convincing argument.

Preparation

Print and cut cards.

Possible approach

Students could work in pairs so that they justify their choices to each other. Ask students to think about the words on the cards as well as the algebra. Students may be able to form shorter sequences of cards even if they struggle to construct the entire proof. These sequences could be combined with the work of other pairs.

Key questions

- How could you explain the steps in your own words?

- Where do you start to see the discriminant appear in the algebra?

Possible support

Can you spot which statement starts or ends the proof?

As well as arranging the cards, students may find it helpful to write out the proof on a mini whiteboard as they go along so that they can explore what *they* would do as a next step, rather than focusing on finding a particular card.

Possible extension

Is there a different way to order the cards and still have a convincing argument? How could you prove the result using slightly different steps?

We know that the discriminant tells us how many real roots the quadratic has. Starting with possible values for a, b and c, follow the argument through to see how this choice affects the roots.

Last updated 05-Jul-16