Factor cards – Teacher notes

Activity description

Learners practise expanding brackets and/or factorising quadratic expressions.

Suitability

Level 2 (Intermediate/Higher) and Level 3 (Advanced)

Time

This depends on how the resource is used.

Resources

Optional: slideshow

16 pages of cards with quadratic expressions and their corresponding factors.

Notes on the cards
Odd-numbered pages contain quadratic expressions; even-numbered pages give the corresponding factors. The first four pages involve expressions in which the coefficient of x is 1; later pages involve more difficult quadratic expressions.

The card sets may be copied onto paper or card, laminated and cut out. Learners could do the cutting out.

You could use different coloured cards for odd and even pages, or print each pair of pages in a different colour to make differentiated sets of cards for learners of different abilities.

Equipment

Optional: felt tips, glue stick and sugar paper for posters, squared paper

Key mathematical language

Quadratic, factor, factorising, squared, negative, positive, multiply, expression, coefficient, constant term

Notes on the activity

The two sets of cards can be matched to practise expanding brackets and/or factorising quadratic expressions. See the notes on the cards above.

These articles could help you to respond to learners who query the relevance of the activity. http://plus.maths.org/content/101-uses-quadratic-equation and http://plus.maths.org/content/101-uses-quadratic-equation-part-ii .

During the activity

Students should be encouraged to work collaboratively in pairs, taking turns to match a pair of cards. The person making the match should explain why the cards match, and ensure that the person listening fully understands the explanation before moving on.

Points for discussion

Ask students questions such as:

- What methods do you know for expanding brackets? – students may have met a variety of methods such as the grid method or FOIL (First, Outer, Inner, Last).

- How do you know whether an expression will factorise into one bracket or two?

- What is the significance, when factorising, of each element of the expression being positive or negative?

At the end of the activity

Ask students what they found most challenging. They could write down their three top tips for overcoming these challenges next time and share their ideas with a partner, a small group or the whole class.

Extensions

Depending on the content of the course, the cards could also be used to:

- prepare a poster showing a card match which challenged the learner, explaining what the challenge was and how it was addressed

- practise graph sketching by using the expressions as functions

- match functions and their graphs

- identify the transformation that maps one graph onto another.

More able students could be invited to explain why a negative number multiplied by a negative number gives a positive number.