Algebraic factors and exponent laws

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A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

What you will practise

- Factor algebraic expressions and simplify products and quotients.
- Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

A common algebraic factor includes the greatest shared numerical factor and the lowest power of each shared variable. Divide each term by that factor to obtain the bracket.

Exponent laws simplify products and quotients; denominator variables must be non-zero. Cancellation works on factors, not separate terms of a sum.

Worked example

Factorise $12x^3y-18x^2y^2$.

Common factor is $6x^2y$.

Divide both terms by it.

Answer: $6x^2y(2x-3y)$

Try it yourself

Name: _____ Date: _____

1. Factorise $8a^2+12a$.

2. Simplify $(3x^2)(4x^5)$.

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. $4a(2a+3)$

Take common factor $4a$.

2. $12x^{7}$

Multiply coefficients; add exponents.

Curriculum reference: VC2M10A01; VC2M10A02

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