Positive and zero 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

• Apply exponent laws to numerical powers with the same base.

• Explain a method and check the reasonableness of a result.

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

Multiplication adds exponents when bases match: $a^m\ a^n=a^{(m+n)}$. Division subtracts exponents for non-zero a. A power of a power multiplies exponents.

For non-zero a, $a^0=1$. These laws describe products and quotients; adding powers requires separate calculation.

Worked example

Simplify and evaluate $2^3 \times 2^4$.

The base is the same, so add 3+4.

$2^7=128$.

Answer: 128

Try it yourself

Name: _____ Date: _____

1. Evaluate $3^2 \times 3^3$.

2. Evaluate $5^6 \div 5^4$.

Answers and explanations

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

1. 243

$3^5=243$.

2. 25

5^2.

Curriculum reference: VC2M8N02

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