

Represent natural numbers as products of powers of prime numbers...

represent natural numbers as products of powers of prime numbers using exponent notation

Learning intention

- represent natural numbers as products of powers of prime numbers using exponent notation

Teach and model

- applying knowledge of factors to strategies for expressing natural numbers as products of powers of prime factors, such as repeated division by prime factors or creating factor...
- developing familiarity with the sequence 1, 2, 4, 8, 16, 32, 64, 128, 256, 512 and powers of 2; the sequence 1, 3, 9, 27, 81, 243, 729 and powers of 3; and the sequence 1, 5, 25...
- solving problems involving lowest common multiples and greatest common divisors (highest common factors) for pairs of natural numbers by comparing their prime...

Check understanding

- Explain the main idea in represent natural numbers as products of powers of prime numbers... using an example.
- Show the idea in a second way: with words, a model, a diagram or symbols.
- Apply the idea to a short unfamiliar situation and justify the result.

Teaching cautions

- Ask the student to explain their choice, not only state an answer.
- Check that key vocabulary is understood in a new example.
- Mix representations so the skill is transferred rather than copied.

Quick lesson sequence

- Connect to prior knowledge and introduce the key vocabulary.
- Model one clear example, then solve a second example together.
- Finish with an independent check and a short student explanation.