

Parent Newsletter

Chapter 1: Numerical Expressions and Factors

Standards

Common Core:

6.NS.2: Fluently divide multi-digit numbers using the standard algorithm.

6.NS.4: Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

6.EE.1: Write and evaluate numerical expressions involving whole-number exponents.

6.EE.2b: Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.

Key Terms

A **power** is a product of repeated factors.

The **base** of a power is the repeated factor.

The **exponent** of a power indicates the number of times the base is used as a factor.

The square of a whole number is a **perfect square**.

A **numerical expression** is an expression that contains only numbers and operations.

To **evaluate** a numerical expression, use the order of operations to find the value of a numerical expression.

The **order of operations** is the order in which to perform operations when evaluating with more than one operation.

Students will...

Determine which operation to perform.

Divide multi-digit numbers.

Write expressions as powers.

Find values of powers.

Evaluate numerical expressions with whole-number exponents.

Use divisibility rules to find prime factorizations of numbers.

Use diagrams to identify common factors.

Find greatest common factors.

Use diagrams to identify common multiples.

Find least common multiples.

Use least common multiples to add and subtract fractions.

Essential Questions

How do you know which operation to choose when solving a real-life problem?

How can you use repeated factors in real-life situations?

What is the effect of inserting parentheses into a numerical expression?

Without dividing, how can you tell when a number is divisible by another number?

How can you find the greatest common factor of two numbers?

How can you find the least common multiple of two numbers?

Two whole numbers other than zero that are multiplied together to get a product are called a **factor pair**.

A **Venn diagram** uses circles to describe relationships between two or more sets.

Factors that are shared by two or more numbers are called **common factors**.

The greatest of the common factors of two or more numbers is called the **greatest common factor** (GCF).

Multiples that are shared by two or more numbers are called **common multiples**.

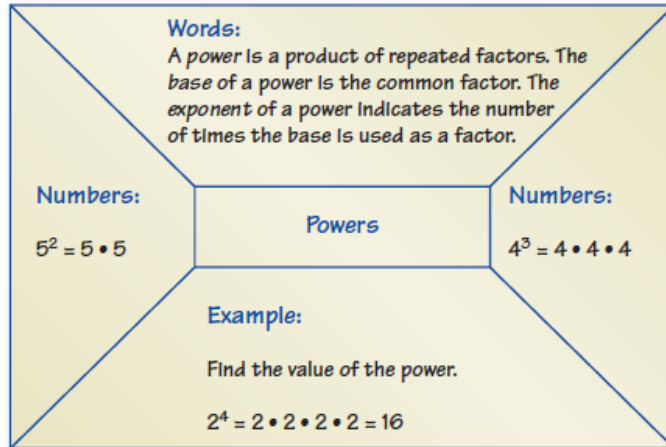
The least of the common multiples of two or more numbers is called the **least common multiple** (LCM).

The **least common denominator** (LCD) of two or more fractions is the least common multiple (LCM) of the denominators.



Reference Tools

An **Information Frame** can be used to help organize and remember concepts. Write the topic in the middle rectangle. Then write related concepts in the spaces around the rectangle. Related concepts can include *Words, Numbers, Algebra, Example, Definition, Non-Example, Visual, Procedure, Details, and Vocabulary*. Place information frames on note cards to use as a quick study reference.



Quick Review

- A *prime number* is a whole number greater than 1 whose only factors are 1 and itself.
- To find the factors of a number, try to divide the number by prime numbers that are less than the given number.
- When parentheses are used in an expression, the operation(s) within the parentheses are performed first.
- A number is divisible by another number if the second number is a factor of the first number.
- Every composite number has only one prime factorization.
- Two numbers that have only 1 as a common factor are called *relatively prime*.
- The GCF can be found by determining which prime factors the numbers have in common.
- The GCF of two numbers will always be less than or equal to the lesser of the two original numbers.
- The LCM of two numbers will always be greater than or equal to the greater of the two original numbers.

Key Ideas

Order of Operations

1. Perform operations in **Parentheses**.
2. Evaluate numbers with **Exponents**.
3. **Multiply** or **Divide** from left to right.
4. **Add** or **Subtract** from left to right.

Prime Factorization

- The **prime factorization** of a composite number is the number written as a product of its prime factors.
- You can use factor pairs and a **factor tree** to help find the prime factorization of a number.
- A factor tree is complete when only prime factors appear in the product.

Games

- Choose Wisely
- 5 is Alive
- 6 Sticks
- 7 Not 11
- 8 is Great
- 9 is Fine
- Can 3=2?
- More Fours
- Pick Your Fraction
- Fun with Fractions

These are available online in the *Game Closet* at www.bigideasmath.com.

What's the Point?

The ability to understand and manipulate expressions and factors is very useful in real life for events like budgeting for a shopping trip. The next time you go to the grocery store, have your student calculate the total cost (before tax) of the items in your shopping cart. Don't forget to include any coupons or discounts as well as multiples of identical items.

The STEM Videos available online show ways to use mathematics in real-life situations. The Chapter 1: Filling Piñatas STEM Video is available online at www.bigideasmath.com.

