

Section Overview



Exponents

Lessons 1-1, 1-2

Why? Exponents provide a shorthand notation for products in which the factor is repeated many times.

$$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 = 3^5$$

3 is the base.
5 is the exponent

Metric Measurements

Lesson 1-3

Why? Metric units of measure are commonly used in science.

To **multiply** by the n th power of ten, move the decimal point n places right.

To **divide** by the n th power of ten, move the decimal point n places left.

	Unit	Abbreviation	Approximate Comparison
Length	Kilometer	km	Length of 10 football fields
	Meter	m	Width of a door
	Centimeter	cm	Width of your little finger
	Millimeter	mm	Thickness of a dime
Mass	Kilogram	kg	Mass of a textbook
	Gram	g	Mass of a small paperclip
Capacity	Liter	L	Filled bottle of sparkling water
	Milliliter	mL	Half-filled eyedropper

Scientific Notation

Lesson 1-4

Why? In real-world applications, numbers can be very large or very small. Scientific notation makes it easier to work with those numbers.

A number written in **scientific notation** is the product of two factors:

a decimal greater than or equal to 1 but less than 10

×

a power of 10

Scientific Notation	Not Scientific Notation
2×10^3	250
3.6×10^2	36×10^2
5.45×10^5	0.5×10^5

Order of Operations and Properties of Real Numbers

Lessons 1-5, 1-6

Why? The order of operations and properties of real numbers are rules for using real numbers.

Order of Operations

1. Perform operations within grouping symbols.
2. Evaluate powers.
3. Multiply and divide in order from left to right.
4. Add and subtract in order from left to right.

Commutative Property

Addition: $2 + 3 = 3 + 2$
 Multiplication: $2 \times 3 = 3 \times 2$

Distributive Property

$4 \times (8 + 2) = (4 \times 8) + (4 \times 2)$
 and
 $4 \times (8 - 2) = (4 \times 8) - (4 \times 2)$

Associative Property

Addition: $(3 + 5) + 4 = 3 + (5 + 4)$
 Multiplication: $(3 \times 5) \times 4 = 3 \times (5 \times 4)$