Standard Deviants SCHOOL

Basic Math

Integer Grab Bag *Viewing Guide*

Module 5

Exponents

exponent: shorthand notation for the multiplication of a number by itself a certain number of times

$3 \times 3 \times 3 \times 3 = 3^4$ AND $(-5)^3 = (-5)(-5)(-5) = -125$

Exponent Exceptions:

- any integer raised to the first power is the same as the integer

  $8^1 = 8$ AND $-15^1 = -15$

- any non-zero number raised to the zero power equals 1

  $1500^0 = 1$ AND $-1500^0 = 1$

Scientific Notation

- method used to make calculations with very large and very small numbers easier
- each digit place is represented by 10

  $10^1 = 10$ $10^{-1} = .1$
  $10^2 = 100$ $10^{-2} = .01$

- for numbers less than one, move the decimal place enough places to the RIGHT, so that the number being multiplied is between 1 and 10

  $0.0003798 = 3.789 \times 10^{-4}$

Order of Operations

when an expression has more than one operation, you must follow the rules for order of operations

Rules for Order of Operations:

Parentheses
Exponents
Multiplication
Division
Addition
Subtraction

PEMDAS

$6 + 7 \times 8$
$= 6 + \mathbf{7 \times 8}$ → multiplication first
$= 6 + 56$ → then addition and subtraction
$= \mathbf{62}$

Rounding Off Numbers

- method used when not working with exact numbers
- round off by the digit place: tens place, hundreds place, thousands place, and so forth

Steps:

1. Find the digit place that you will be rounding off. ("rounding digit")
2. Look one digit place to the right of where you want to round off to.
   - If that digit is less than 5, do not change the rounding digit, but change all digits to the right of the "rounding digit" to zero.
   - If that digit is greater than or equal to 5, add one to the "rounding digit" and change all digits to the right of the "rounding digit" to zero.

Round to the nearest thousand: 1492

the digit to the right of the thousands place is less than five, so replace numbers to the right of thousands place with zeros

1492 → **1000**