

Math Review

Part 1: Numbers, Operations & Processes

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Types of Numbers

Natural Numbers

Positive #'s:

1, 2, 3, 4,....

Whole Numbers

Positive #'s Including Zero:

0, 1, 2, 3, 4,....

Integers

Positive or Negative Whole #'s

...,3, -2, -1, 0, 1, 2, 3,...

Rational Numbers

Any # that can be written as a fraction or decimal

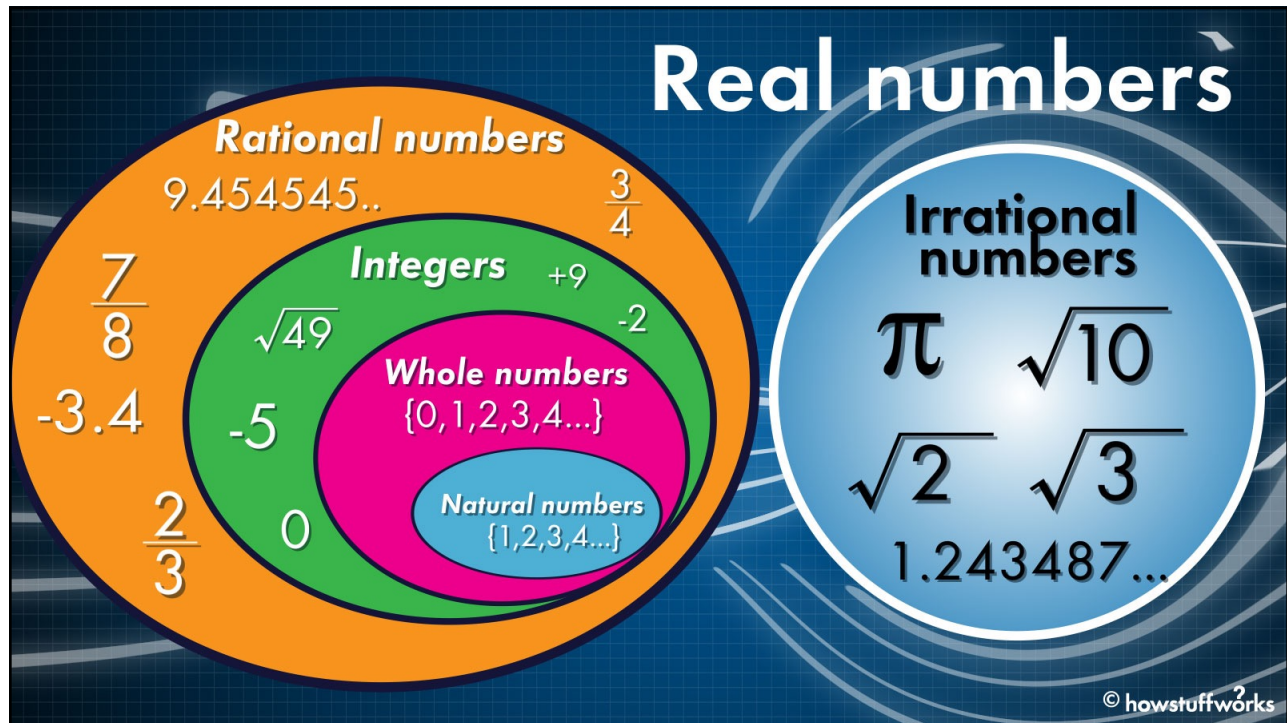
-1/3, 7/8, 0.6666..., 0.25,...

Irrational Numbers

Any # that cannot be written as a fraction

$\pi = 3.14159$, $\sqrt{2} = 1.41421...$

2



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Types of Numbers

Prime Numbers

Special #'s with only two factors, 1 and itself.

2, 3, 5, 7, 11, 13, 17, 19,...

Composite Number

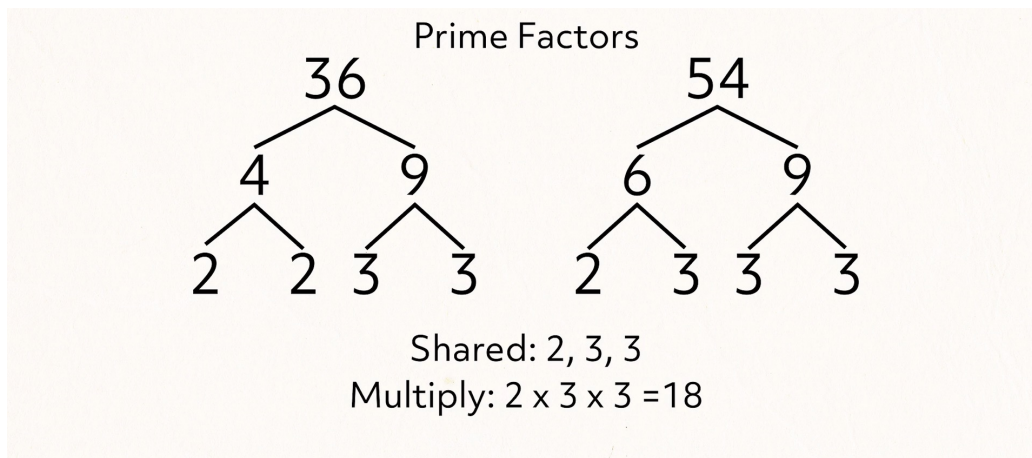
Any # with 2 or more factors (i.e. can be made from other combining other prime numbers)

$24 \rightarrow 2 \times 12 \rightarrow 2 \times (2 \times 6) \rightarrow 2 \times 2 \times (2 \times 3)$ so 24 is made of $2 \times 2 \times 2 \times 3$

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Greatest Common Factor

Largest factor common between two or more #'s



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Operations

Addition (+, Σ) → **Sum**

Subtraction (-) → **Difference**

Multiplication (\times , $*$, \bullet , (3)(4), 5y) → **Product**

Division (\div , $\frac{1}{2}$, 7|121) → **Quotient**

Exponents/Powers/Order ($3^4 = 3 \times 3 \times 3 \times 3$) → **Repeated Multiplication**

Square Root ($\sqrt{9}$, $16^{1/2}$) → Produces a # that is equal to a specific quantity when multiplied by itself. (undoes exponents)

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Inequalities

Equals Too ($=$)

Approximately Equal Too (\approx)

Not Equal Too (\neq)

Greater Than ($>$)

Less Than ($<$)

Great Than & Equal Too (\geq)

Less Than & Equal Too (\leq)

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Operations

Brackets

Exponents

Division

Multiplication

Addition

Subtraction

Brackets

Exponents

Division - **M**ultiplication

Addition - **S**ubtraction

If Same Precedence,
Solve Left-to-Right



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Processes

Expand

Is to take the expression and perform operations to remove brackets (usually combine like terms as well)

Simplify

Is to reduce (an equation, fraction, etc) to a simpler form by cancellation of common factors, regrouping of terms in the same variable, etc.

Evaluate

Is to determine the numerical value of the expression for a given value of each variable in the expression.

Solve

To find a value (or values) we can put in place of a variable that makes the equation true.