nth Degree Tutoring

Arithmetic Power Hour

Terminology / notation

- Sum, difference, product, quotient, ratio
- Integer, consecutive integers, consecutive even / odd integers
- Prime, multiple, divisor

Ratios

- "The ratio of A to B" = $\frac{A}{B}$ or A:B.
- "The ratio of A to B is 3 to 5": $\frac{A}{B} = \frac{3}{5}$ OR $A = 3x$, $B = 5x$
- Multiple ratio: Ex. The three sides of a triangle have ratio 2:3:4. Very useful for part:part:whole (one of which is often left out but very easy to derive)

  There are 12 black cars for every 20 white cars. In a garage full of 128 cars, how many are white?

FDP conversions, including

- D/P conversions with percents less than 1 or greater than 100: Don't Panic!
- Fraction to decimal: Use calculator
- Decimal to fraction: Some memorizing is very helpful

Large vs. small numbers

We tend to think that numbers get "bigger when you multiply, smaller when you divide." That is only true when multiplying or dividing by "large" numbers (> 1). "Small" numbers ($0 < x < 1$) give the exact opposite results!

Exponents

- Some memorizing helpful
- Powers of various kinds of numbers
  - Fractions
  - Large vs. small
  - Negative
- Negative exponents
  - Within a fraction: The "other-ator" rule
  - Entire fraction: "Reciprocal"
  - Whole number or letter: "One over"

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Quiz

1. A team had a win-to-loss ratio of 2 to 1. If it played 90 games, how many did it win?
2. Convert 0.07% to a decimal
3. Convert 3/5 to a decimal
4. Simplify $\frac{5^{-1}}{2^{-1}}$
5. Which one is larger, 1/4 or 0.25%? (Or are they equal?)
6. What is $\left(\frac{3}{8}\right)^2$?
7. Evaluate: $(-2)^2$, $(-2)^3$, and -2^4

Quantitative comparison

8. $z > 1$

A	**B**
z^5	z^6

9. $0 < z < 1$

A	**B**
z^5	z^6

10. $z < -1$

A	**B**
z^5	z^6

11. $-1 < z < 0$

A	**B**
z^5	z^7