Notes

Topic 08: Exponents and Scientific Notation

$$2^4 \rightarrow 2 * 2 * 2 * 2 = 16$$

$$2^4 * 2^3 \rightarrow 2^7$$

When multiplying numbers with exponents, keep the same base and ***add*** the exponents.

$$\frac{2^7}{2^3} \rightarrow 2^4$$

When dividing numbers with exponents, keep the same base and ***subtract*** the exponents.

$$2^{-4} \rightarrow \frac{1}{2^4}$$

This is key. Negative exponents are not negative numbers. They simply signal a flip to the ***denominator***.

$$2^1 \rightarrow 2$$

Any number to the power of "1" is that same number.

$$2^0 \rightarrow 1$$

Any number to the power of "0" is "1".

Notes

$230{,}000 \rightarrow 2.3 * 10^5$

A number in scientific notation with a ***positive*** exponent is a really big number.

Don't just count the number of zeros! You have to count the number of decimal places.

$0.00789 \rightarrow 7.89 * 10^{-3}$

A number in scientific notation with a ***negative*** exponent is a really small number. It is not a negative number, just less than "1".

Again, don't just count the number of zeros! You have to count the number of decimal places.

$8 * 10^5 + 6 * 10^4 \rightarrow 8.6 * 10^5$

In doing operations with numbers in scientific notation, a useful strategy is to first convert the number to its normal form.

If you do that here, you can easily see that 800,000 plus 60,000 is 860,000.