Quick Guide to the Basic Operations and Exponents

The **Basic Operations**

There are **four basic operations**:

+ (addition)	as in 6 + 2 = 8; the sum of 6 and 2 is 8.
- (subtraction)	as in 6 - 2 = 4; the difference of 6 and 2 is 4.
x (multiplication)	as in 6 x 2 = 12; the product of 6 and 2 is 12.
/ (division)	as in 6 / 2 = 3; the quotient of 6 and 2 is 3.

Also you use parentheses ( ) for grouping and sometimes multiplication.

Examples: 20 - 12 - 7 = 8 - 7 = 1 . . . while 20 - (12 - 7) = 20 - 5 = 15
also, (3 + 4)(6 - 2) = (7)(4) = 7 x 4 = 28 ,
also, 3 + (4)(6) - 2 = 3 + 24 - 2 = 27 - 2 = 25

Exponents:

There is one more: ^ (exponentiation), so **there are five** operations.

This last operation would give 6 ^ 2. This means "6 to the power 2", or in other words:

6 ^ 2 = 6 x 6 = 36. (Remember, it's not just 6 x 2.)
The 6 is the **base** and the 2 is the **exponent**.
This is also called "6 squared" ; it's the area of a square of side 6. (See square roots.)

Another example would be 3 ^ 4 = 3 x 3 x 3 x 3 = 9 x 9 = 81.

Example: Which is bigger, 4 ^ 5 or 5 ^ 4 ?

Answer:
4 ^ 5 = 4 x 4 x 4 x 4 x 4 = 16 x 16 x 4 = 256 x 4 = 1024, while
5 ^ 4 = 5 x 5 x 5 x 5 = 25 x 25 = 625.
To answer the question, 4 ^ 5 is bigger.
As a rule, the smaller number to the bigger power often (but not always) comes out bigger.

One important use of exponents is to express really large (or really small) numbers:
This is called **scientific notation** and uses powers of ten:

Example: 4560 = 4.56 * 10^3 and 0.00003802 = 3.802 * 10^(-5)

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