

Indices, powers, exponents. All names for little numbers like these, that show how many times the term in front is multiplied by itself.

Let's look at six laws of indices.

We can multiply as long as the base is the same. Here we simply add the indices.

For example, three A to the power of two, times five A to the power of five.

Three times five is 15 and two plus five is seven - so the answer is 15 A to the power of seven.

We can divide as long as the base is the same. Here we simply subtract the indices.

For example:

15 x to the power of eight, divided by three x to the power of two.

15 divided by three is five.

And eight subtract two is six, so the answer is five X to the power of six.

A third law is that any number, to the power of zero, equals one.

Any number at all.

The fourth rule is Y to the power of A, to the power of B, equals Y to the power of AB.

Just multiply the index values A times B.

This is also true of negative numbers. For example, Y to the power of four all to the power of negative two.

So, the answer is y to the power of negative eight.

To change a negative index to a positive one, use the fifth rule, which is Y to the power of negative A equals one over Y, to the power of A.

So, Y to the power of negative eight, would therefore equal one over Y to the power of eight.

The sixth law of indices involves powers which are fractions.

Y to power of A over B, equals the B root of Y to the power of A.

In other words, the denominator B, becomes the root of y, all to the power of the numerator A.

In this example, four to the power of three over two, will become the square root of four to the power of three.

Or simplified, the square root of four is two, and two to the power of three is eight.

Use these six laws of indices to simplify expressions.