Exponential Fractions Part 1

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OK, so you want to get a head start on your homework, although it is due in 30 minutes, and you flip to the page that you are assigned to work problems out of. Then all of a sudden you see something strange

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

How do you solve a fractional exponent? Well let's take a closer look.

$$4^{\frac{1}{2}} = 2$$

I know that you are thinking, "how does $4^{\frac{1}{2}}$ = 2?"
well the 4 and the fractioned exponent are using a cloaking device because Fractional exponents are actually <mark>Rational expressions</mark>. They look a lot like this.

$$\sqrt{4} = 2$$

Now that looks much better, "where did the ½ go?" radicals are converted to fractions and vice versa. You will learn that there are different types of radicals or roots, such as cubed roots, fourth roots, seventh roots, etc. here is how the conversion works

$$\sqrt[b]{\#^a} \rightarrow \#^{\frac{a}{b}}$$

b=the root (2 is the square root, a 2 above the radical is not necessary)
a=the exponent beneath the radical
#=is obviously the number

So basically

$$4^{\frac{1}{2}} \rightarrow \sqrt[2]{4^{(1)}} \rightarrow \sqrt{4} = 2$$

Here are the Steps for the equation above (the letters a,b,# will be used, look to the example in the previous page and you will see them…

Step 1. Create the radical

Step 2. Write b above the radical as seen in previous examples

Step 3. Write # and a in their appropriate location

Step 4. Simplify if you have to

Step 5. Solve

And there you have it.

This is the basics for exponential fractions, if you want more information, contact animedragonfighter at:

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