Theorem For $b > 0, b \neq 1, b^x = b^y$ if and only if $x = y$

Example: $3^x = 3^4$

Don't you just love how we write things mathematically? What's this *b* has to be greater than zero and not equal to one business?

Let's try *b* being negative, not greater than zero, and see what happens.
$(-2)^2 = 2^2$, the exponents are equal, are the bases then equal? No!

How about when the base equals one: $1^5 = 1^{12}$ in this case, the bases are equal, do the exponents have to be? Again no, that why we have the restrictions in the theorem.

Now you know why $b > 0$