

What is bigger a^x or x^a ? Well to find out I have decided to construct a table with some of the possible outcomes:

	a is a negative integer.	a is equal to zero.	a is equal to infinity.	$0 < a \leq 1$
x is a negative integer.	It all depends on the values that are inputted.	x^a is bigger, as whatever x is the answer would be 1. Whereas the other one, it would give 0.	a^x is bigger as x^a would tend to $\lim_{x \rightarrow 0}$ because it would be 1 over infinity.	a^x would always be equal or greater than 1, whereas x^a would be equal or less than x, which is a negative integer.
x is equal to zero.	x^a would always be bigger because it would be 0 to the power of a negative number. This would give 1 over 0 which is generally said to be equal to infinity.	The same unless one of them tends to $\lim_{x \rightarrow 0}$ where the 0 is slightly negative. If so, a^x is bigger.	The same unless one of them tends to $\lim_{x \rightarrow 0}$ where the 0 is slightly positive. If so, a^x as infinity to the power of 0 is 1.	a^x as 1 to the power of 0 is 1, which is larger than 0.
x is equal to infinity.	a^x is bigger than x^a as long as infinity is considered to be an even expression.	They are equal as ∞^0 is equal to 1, the same applies to 0^∞ .	The same. Except if we are talking about different infinities. $\infty^2 = \infty$ both of them are called infinities, but the right one is larger.	x^a would always be bigger than a^x

$0 < x \leq 1$	x^a would always be larger. Eg. $a = -2$ $x = 0.5$ $x^a = *$ see below $\rightarrow 4$ Whereas a^x would simply be -2 to the power of 0.5 , which gives an error. You could actually use imaginary numbers to solve the negative root, but it's too complex...	x^a would give always one as anything to the power of zero (0) is equal to one. On the other hand 0 to the power of anything is zero, which is less than one. $x^a > a^x$	a^x is a larger than x^a as it would be infinity (as $\infty^{0 < x \leq 1}$ is equal to infinity). On the other side x^a , the $(0 < x \leq 1)^\infty$ would be : $\lim_{a \rightarrow \infty} \Rightarrow x^a = 0$	If a is larger than x then a^x has a higher value than x^a .
----------------	---	--	---	--

*

$$0.5^{-2} = \frac{1}{0.5^2} = \frac{1}{0.25} = 4$$

These are only some properties that could be inputted for a and x , but there are millions more of them. Here I just tried to place some rather curious properties.