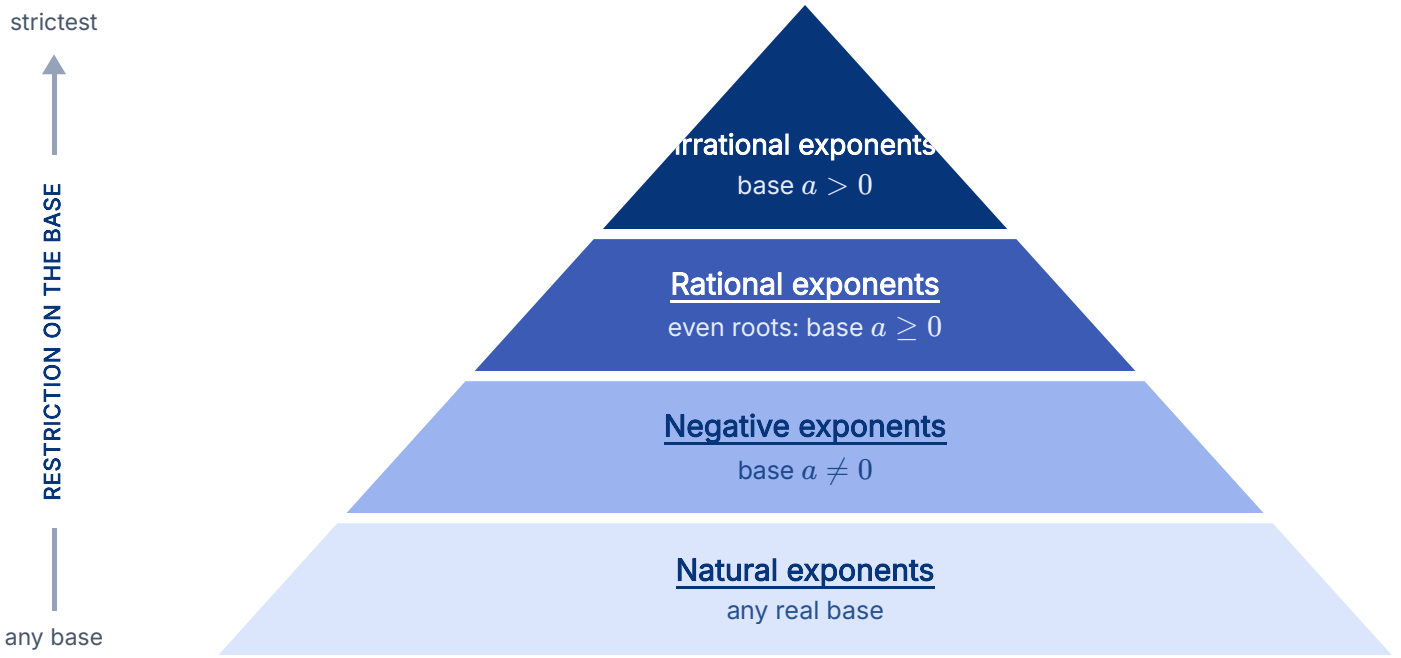
BEFORE YOU READ

Every extension tightens the base

Each time the exponent was extended, the restriction on the base got tighter. Irrational exponents tighten it once more.



TAKEAWAY

The price of completeness

The restriction $a > 0$ is what allows a^x to be defined for the entire real number line. Zero is excluded as well: 0^x has no continuous extension to all real exponents.