

CH 1: Functions as models

1.4 Exponential Function

This section introduces the exponential function.

1. the exponential function is $f(x) = a^x$, for a positive fixed constant a .
2. recall $a^0 = 1$ for all nonzero values of a , so all exponential functions go through the point $(0, 1)$
3. $a^{-x} = \frac{1}{a^x}$, if $a \neq 0$
4. $a^{\frac{p}{q}} = \sqrt[q]{a^p}$
5. $a^{x+y} = a^x \cdot a^y$
6. $a^{x-y} = \frac{a^x}{a^y}$
7. $(a^x)^y = a^{(x \cdot y)}$
8. $(ab)^x = a^x b^x$ (note that the power is the same on both a and b)