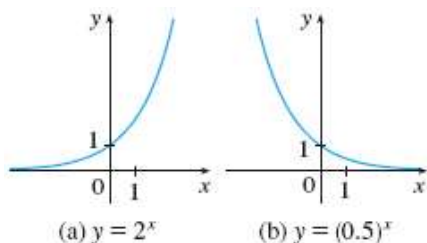


Exponential Functions

The **exponential functions** are the functions of the form $f(x) = b^x$, where the base b is a positive constant. The graphs of $y = 2^x$ and $y = (0.5)^x$ are shown in [Figure 20](#). In both cases the domain is $(-\infty, \infty)$ and the range is $(0, \infty)$.

Figure 20



Exponential functions will be studied in detail in [Section 1.4](#), and we will see that they are useful for modeling many natural phenomena, such as population growth (if $b > 1$) and radioactive decay (if $b < 1$).