



## Vocabulary: Introduction to Exponential Functions



### Vocabulary

- **Asymptote** – a line that a graph approaches more and more closely.
  - For example, the function  $y = 4^x$ , which is shown below, has a horizontal asymptote at  $y = 0$ .
- **Exponential function** – a function of the form  $y = a \cdot b^x$ , where  $a \neq 0$ ,  $b > 0$ , and  $b \neq 1$ .
  - An exponential function multiplies an initial value ( $a$ ) by the same positive number ( $b$ ) repeatedly.
  - For example, the function  $y = 4^x$ , graphed to the right, is exponential.
    - The “key points” shown on the graph of  $y = 4^x$  are  $(-1, \frac{1}{4})$ ,  $(0, 1)$ , and  $(1, 4)$ .
    - For  $y = 4^x$ , every time  $x$  increases by 1,  $y$  is multiplied by a factor of 4.

