Vocabulary: Exponential Functions

Vocabulary

- <u>Asymptote</u> – 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 $y = 0$.

- <u>Exponential function</u> – a function of the form $y = a \cdot b^{kx}$, 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.