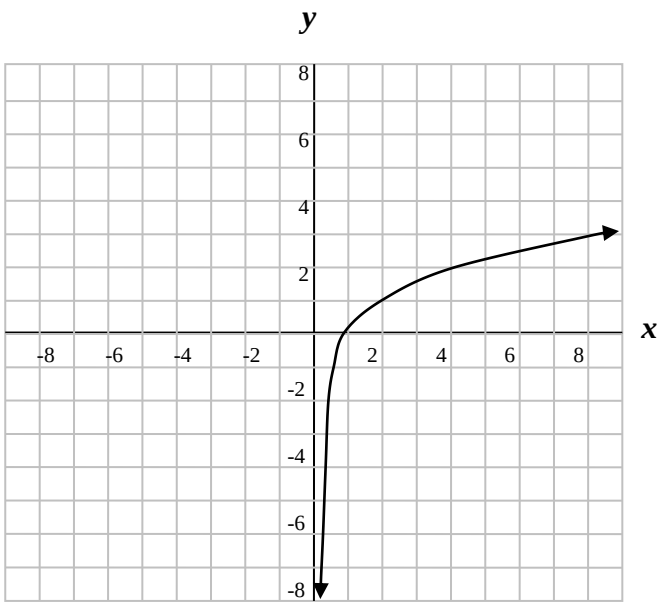
Logarithmic Function

General equations:

$y = \log(x) = \log_{10}(x) = \log x$ where 10 = base

$y = \ln(x) = \log_e(x) = \ln x$ where e = base = 2.718…

$y = \log_b(x) = \log_b x$ where b = base



Example:

$$y = \log_2(x)$$

Conversion from one base (a) to another base (b):

Start with **$\log_a x$**.

Want to **convert this to base b**.

Formula: $\log_b x = \dfrac{\log_a x}{\log_a b}$

Example : given $\log_3 16$, what is $\log_{10} 16$?

Answer: $\log_3 16 = \dfrac{\log_{10} 16}{\log_{10} 3}$