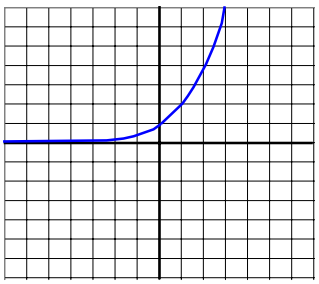
Math Study Strategies

Graphing Exponential and Log Functions

Exponential Functions

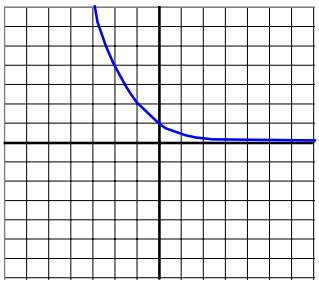
$y = 2^x$ and $y = 2^{-x}$ are exponential functions

$y = 2^x$



Increasing function

$y = 2^{-x}$

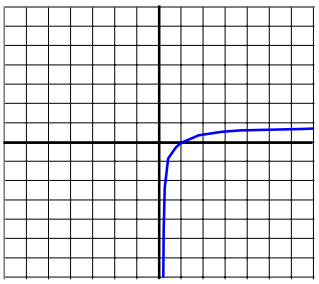


Decreasing function

Domain $(-\infty, \infty)$
Range $(0, \infty)$
y- intercept (0, 1)
The x-axis is the asymptote for the graph.
$f(x) = e^x$ is the natural exponential function, where e = 2.718281828459...

Logarithmic Functions

$y = \log x$ is a logarithmic function



domain $(0, \infty)$
range $(-\infty, \infty)$
x- intercept (1,0)
The y-axis is the asymptote for the graph.
The logarithmic function is the inverse of the exponential function.

- For the common logarithm (base 10)
  $y = \log x$ is the same as $10^y = x$

- For the natural logarithm (base e)
  $y = \ln x$ is the same as $e^y = x$