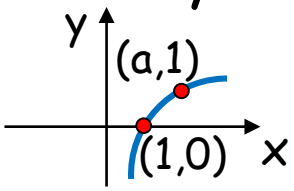
Logs & Exponentials

$y = \log_a x$



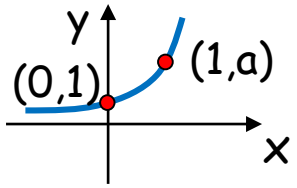
$\log_a 1 = 0$

$\log_a a = 1$

To undo log take exponential

To undo exponential take log

$y = a^x$



$a^0 = 1$

$a^1 = a$

Basic log graph

Basic exponential graph

$\log A + \log B = \log AB$

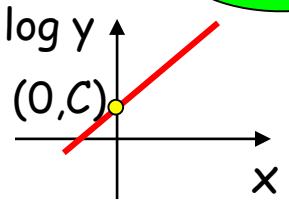
$\log A - \log B = \log \frac{A}{B}$

$\log (A)^n = n \log A$

Basic log rules

$y = ab^x$

Can be transformed into a graph of the form



$\log y = x \log b + \log a$

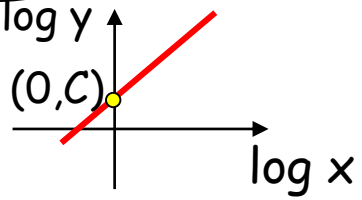
$Y = mX + C$

$Y = (\log b)\ X + C$

$C = \log a \quad m = \log b$

$y = ax^b$

Can be transformed into a graph of the form



$\log y = b \log x + \log a$

$Y = mX + C$

$Y = bX + C$

$C = \log a \quad m = b$