4-4 Properties of Logs

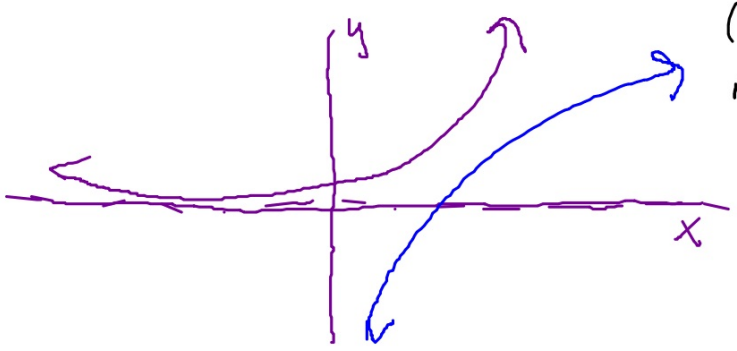
$\{a \mid a \in \mathbb{R}^+, a \neq 1\}$

- if $b = a^x$, then $\log_a b = x$
- $\log_a a^a = 1$ Ex/ $\log_5 5 \Rightarrow 5^y = 5^1$, $y = 1$
- $\log_a 1 = 0 \Rightarrow a^0 = 1$

* Some log expression are undefined

Ex) Evaluate $\log_3(-27) = y$

$3^y = -27$



The log (argument) must be > 0

- $\log_a b$ is undefined if $b \leq 0$
- $\log_a 0$ is undefined, since $a^x = 0$ has no solution
- $\log_a(a^n) = n$

Ex $\log_3(3^4) = x$

$3^x = 3^4$

$x = 4$

HW 4G p. 115 #1, 2
4H p. 116 #1
4I p. 117 #1-3