

Day 2 on 3.2

I. Find the domain, vertical asymptote, x-intercept and then sketch by hand.

(Read page 191)

Ex 1) $g(x) = \log_6 x$

D: $x > 0$
 $(0, \infty)$

V.A.: $x = 0$

$0 = \log_6 x$

$6^0 = x$

$1 = x$

x-int (1, 0)

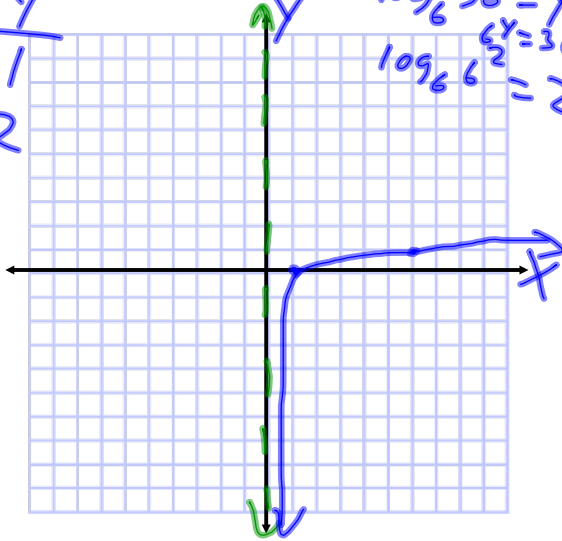
X	Y
6	1
36	2

$\log_6 6^1 = 1$

$\log_6 36 = 2$

$6^2 = 36$

$\log_6 6^2 = 2$



Ex 2) $h(x) = \log_4 (x-3)$

D: $x-3 > 0$
 $x > 3$ $(3, \infty)$

V.A.: $x = 3$

x-int: (4, 0)

$0 = \log_4 (x-3)$

$4^0 = x-3$

$1 = x-3$

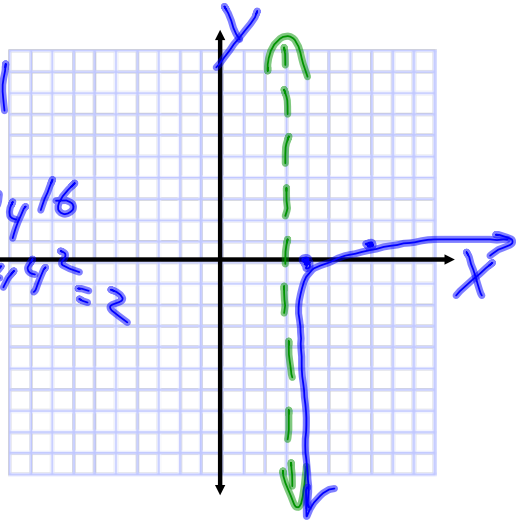
$4 = x$

X	Y
7	1
19	2

$\log_4 4^1 = 1$

$\log_4 16$

$\log_4 4^2 = 2$



Ex 3) $y = \log_{10}(x - 1) + 4$

D: $x - 1 > 0$
 $x > 1$ $(1, \infty)$

V.A.: $x = 1$

X-int: $(1 + 10^{-4}, 0)$

$$0 = \log_{10}(x - 1) + 4$$

$$\begin{array}{r} -4 \\ -4 = \log_{10}(x - 1) \\ 10^{-4} = x - 1 \\ 1 + 10^{-4} = x \end{array}$$

$\log_{10} 10 + 4$
 $1 + 4 = 5$

x	y
1	5

II. Evaluate with a calculator to 3 decimals.

Ex 4) $f(x) = \ln x$, $x = 18.31$

$$\ln 18.31 = 2.907$$

III. Use the properties of natural logs to rewrite.

Ex 5) $-\ln e = -1$

Ex 6) $7 \ln e^0 = 7(0) = 0$

$$7 |\ln| =$$

$$\downarrow$$

$$0$$