

Notes 11/17

AZ

Warm up

1. change into exponential form

a) $\log 1000 = 4$

b) $\ln 7 = 1.95$

c) $\log_7 343 = 3$

2. evaluate

a) $\ln e^7$

b) $\log \frac{1}{100}$

c) $\log_5 625$

Graphing with logs

* remember log is the inverse of exponential, this helps with graphing because

(x, y) original \rightarrow (y, x) inverse

ex) $y = 4^x$

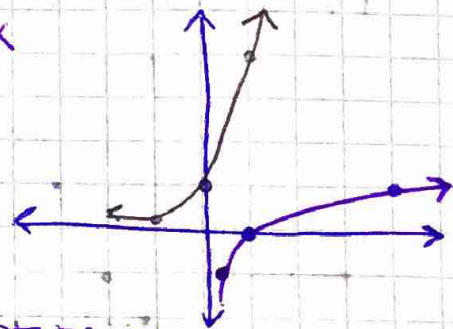
x	y
-1	1/4
0	1
1	4

so...

$y = \log_4 x$

x	y
1/4	-1
1	0
4	1

switch x & y



remember key points?

* asymptote is now $x = 0$

equation → graph

ex $y = 4 \log_4(x-1) + 2$

1. PF & inverse PF

PF: $y = \log_4 x$
 inverse PF: $y = 4^x$

2. list transformations

VD by 4
 Right 1
 up 2

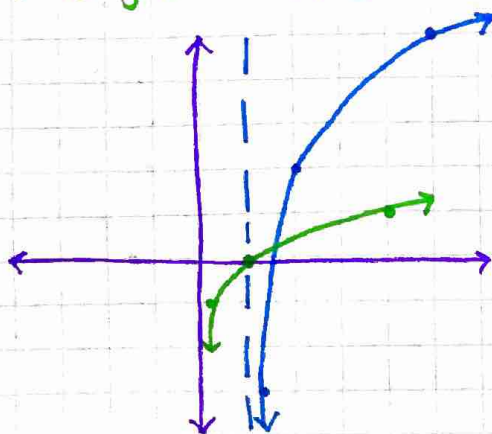
3. find key pts of inverse PF

x	y
-1	1/4
0	1
1	4

4. swap x & y from step 3 to get key pts for PF (log eq)

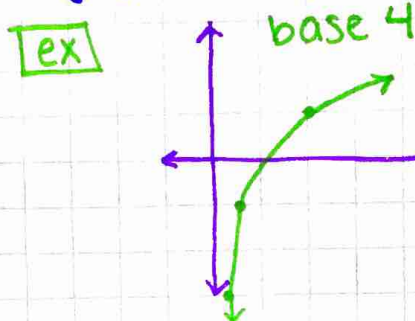
x	y
1/4	-1
1	0
4	1

5. graph PF & final graph
 * make to include asymptote
 PF is green final is blue



multiply y's
 by 4, right 1,
 up 2

graph → equation



1. PF

$y = \log_4 x$

2. left / right (look at asymptote should be at y-axis)

none

3. up/down (look at middle pt, should be at x-axis)

down 1

4. vertical dilation (vertical space between pts, should be 1)

VD by 2

5. horizontal dilation (spaces from 3rd pt to asymptote should be the base)

* to find you do
spaces away
 base

$\frac{2}{4} = 1/2$ HD by 1/2

6. write equation

$y = 2 \log_4(2x) - 1$