Welcome back!
Please put 3.1 on the top of the colored cart.

Jan 29-8:13 AM

Questions from 3.2a? ,68,39

$-\ln e$

$-\log_e e$

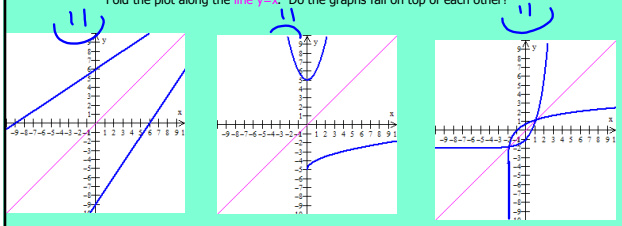
-1

Feb 2-3:03 PM

Relations who are inverses of each other have graphs that are *symmetric* about the line y = x.

Are the graphs inverses?

Fold the plot along the line y=x. Do the graphs fall on top of each other?



Mar 24-1:49 PM

Now try converting these....

$y=10^x$ $\log y = x$

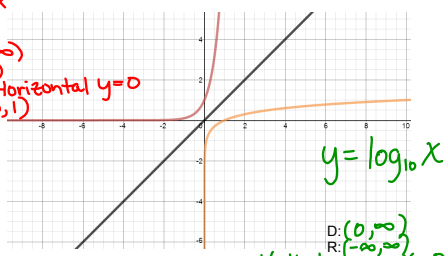
$x=10^y$ $y=\log_{10}(x)$

Then graph the two 2 original equations...

Feb 2-2:36 PM

$y=10^x$

D: $(-\infty,\infty)$
R: $(0,\infty)$
Asymptote: Horizontal $y=0$
y-intercept: $(0,1)$



$y=\log_{10} x$

D: $(0,\infty)$
R: $(-\infty,\infty)$
Vertical Asymptote: $x=0$
x-Intercept: $(1,0)$

Feb 2-2:44 PM

For the log function, notice that x is always Positive.

Why is this...?

$$y=\log_{10}(x)$$

10^y = negative #

Never

Conclusion: You can ONLY take the log of POSITIVE numbers!

Feb 2-2:55 PM

Take the parent graph $y = \log_{10}(x)$
What transformations have taken place for the following functions?
Find the domain and range of each.

up 3 $y = \log_{10}(x) + 3$
D: $(0, \infty)$
R: $(-\infty, \infty)$

$y = \log_{10}(x+3)$ left 3
D: $(-3, \infty)$
R: $(-\infty, \infty)$

Reflect x-axis $y = -\log_{10}(x-3)$
Rt 3 D: $(3, \infty)$
R: $(-\infty, \infty)$

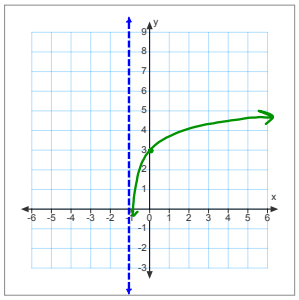
$y = \log_{10}(x+4) - 5$ left 4, Down 5
D: $(-4, \infty)$
R: $(-\infty, \infty)$

p. 203, #57, 61 (HW)

Feb 2-2:49 PM

Sketch the graph $f(x) = 3 + \log_2(x+1)$

Transformations: up 3 left 1
asymptote: $x = -1$
x-intercept: $(-.875, 0)$
y-intercept: $(0, 3)$
Domain: $(-1, \infty)$
Range: $(-\infty, \infty)$
Incr/Decr:



CAUTION Beware of calculator limitations!

Feb 3-4:49 PM

HOMEWORK

...logs!

3.2 (p203): 1-39 odd, 65-70 all; 43-51odd, 53-62all

Feb 3-4:46 PM