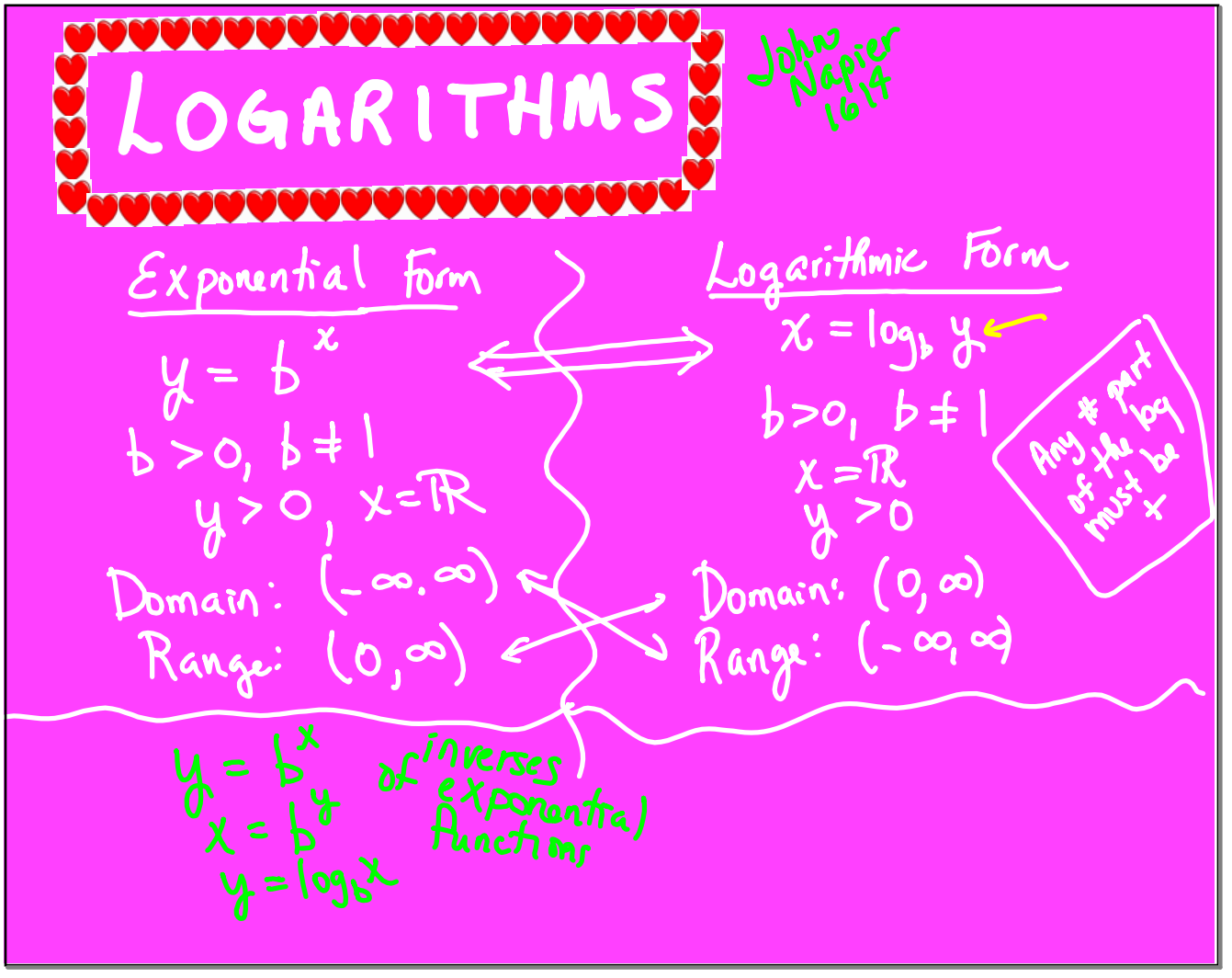
February 9, 2022



$y = \log_b x$

Domain: $(0, \infty)$

$y = \log_7 (x-3)$

Find domain.

Test Points!

$(3, \infty)$

$y = \log_6 (4-x^2)$

Find domain

$(2-x)(2+x)$

$4 - x^2 = 0$

$\sqrt{4} = \sqrt{x^2}$

$\pm 2 = x$

$(-2, 2)$

Common Logs

$\log_{10} x = \log x$

Natural Logs

$\log_e x = \ln x$

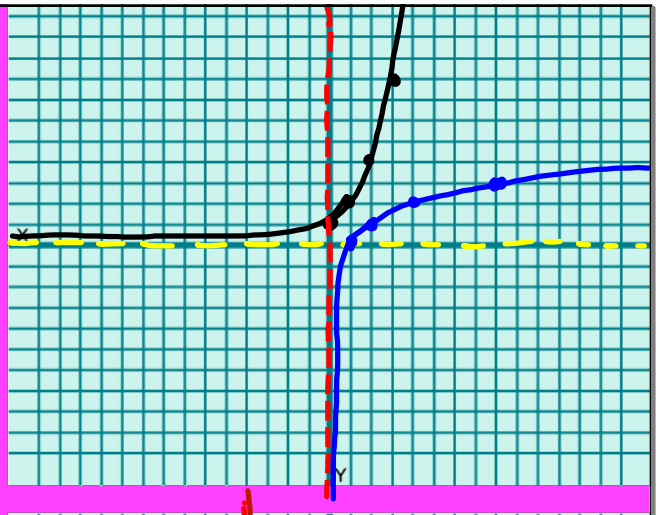
February 9, 2022

$y = 2^x$

x	y
0	$2^0 = 1$
1	$2^1 = 2$
2	$2^2 = 4$
3	$2^3 = 8$

$y = \log_2 x$

x	y
$2^0 = 1$	0
$2^1 = 2$	1
$2^2 = 4$	2
$2^3 = 8$	3



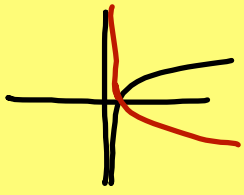
x-axis flip

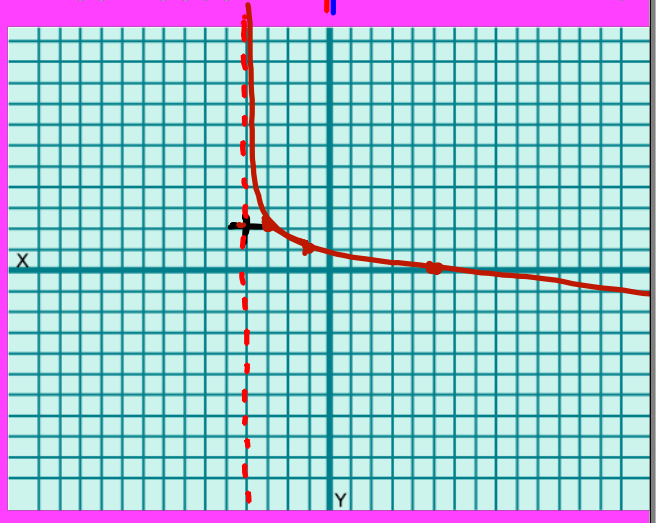
$y = -\log_3 (x+4) + 2$

left 4 up 2

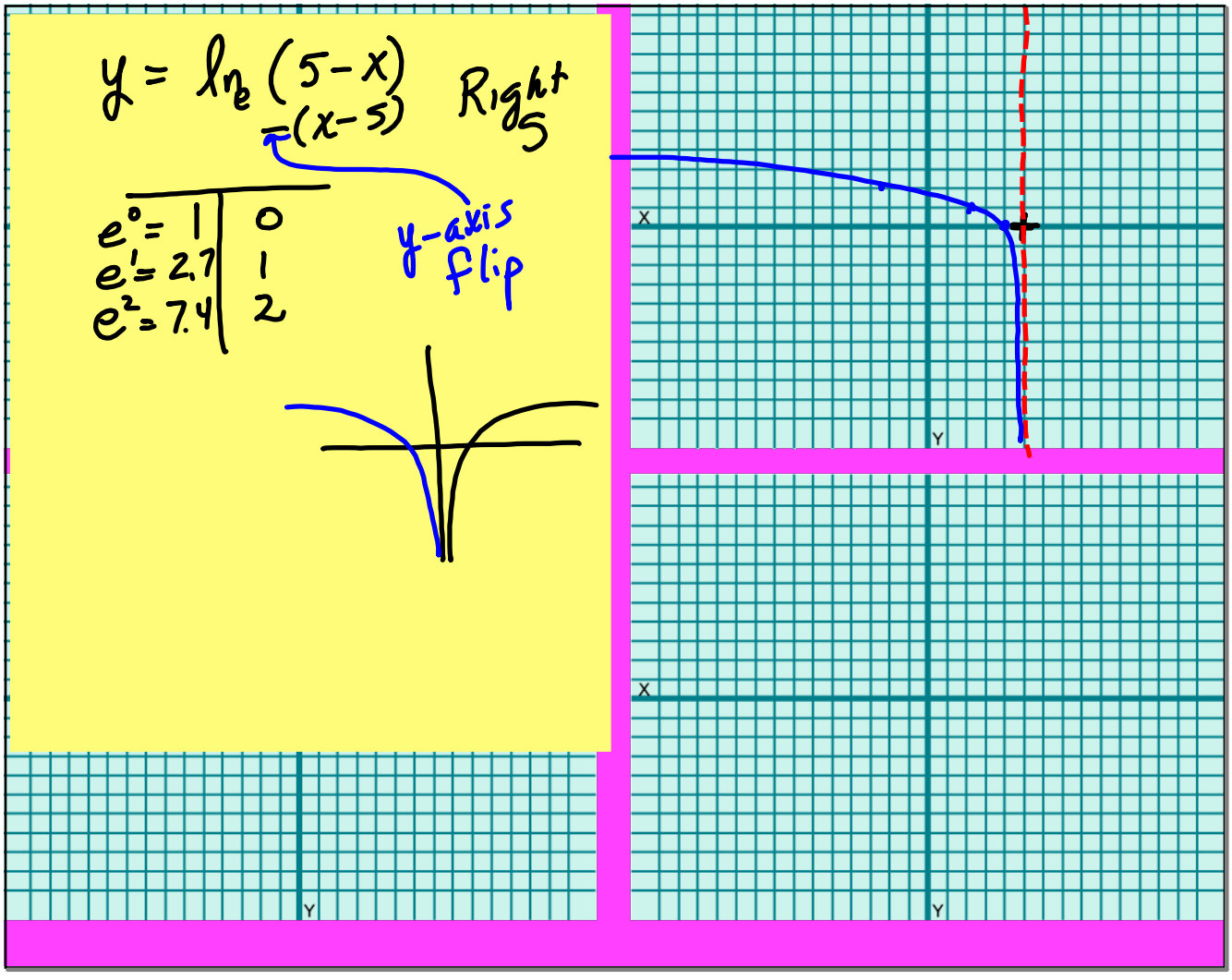
$y = 3^x$

x	y
$3^0 = 1$	0
$3^1 = 3$	1
$3^2 = 9$	2
~~$3^3 = 27$~~	3





February 9, 2022



Evaluating Logs

argument

$2^3 = 8 \iff 3 = \log_2 8$

$3 = \log_2 2^3$

Logs represent exponents.

$\log_5 25 = 2 \iff 5^2 = 25$

$\log_5 5^{17} = 17$

$\log_2 4 = \log_2 2^2 = 2$

$\log_3 81 = \log_3 3^4 = 4$

$8^{\log_8 13} = 13$

$e^{\ln 123} = 123$

$\log_{12} \frac{1}{144} = \log_{12} \frac{1}{12^2}$

$= \log_{12} 12^{-2} = -2$

$\log_7 \sqrt[5]{49} = \log_7 \sqrt[5]{7^2}$

$= \log_7 7^{2/5} = \frac{2}{5}$

$\log_{10} 1000 = \log_{10} 10^3 = 3$

$\ln e^{15} = 15$

$\ln \sqrt[7]{e^3} = \ln e^{3/7} = 3/7$

February 9, 2022