Log Review

1) Common bases
2) Exponentiate (start with logs)
3) log & plog

No Graphing Calculator

#1-3 With pink sheet

#1 Graph

#2 $\left(\frac{1}{4}\right)^{x+2} = \sqrt[5]{2^x}$

$\left(\frac{1}{2^2}\right)^{x+2}$

$\left(2^{-2}\right)^{x+2} = 2^{\frac{x}{5}}$

$2^{-2x-4} = 2^{x/5}$

$5\left[-2x-4 = \frac{x}{5}\right]$

$-10x-20 = x$

$\frac{-20}{11} = \frac{11x}{11}$

$-\frac{20}{11} = x$

$6^{-2} = \frac{1}{36}$

$\frac{1}{6^2} = \frac{1}{36}$

#3 Evaluate

Common bases

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

$\log_6 \sqrt[5]{36} = \log_6 \sqrt[5]{6^2} = \log_6 6^{2/5} = 2/5$

$\ln e^{1237} = 1237$

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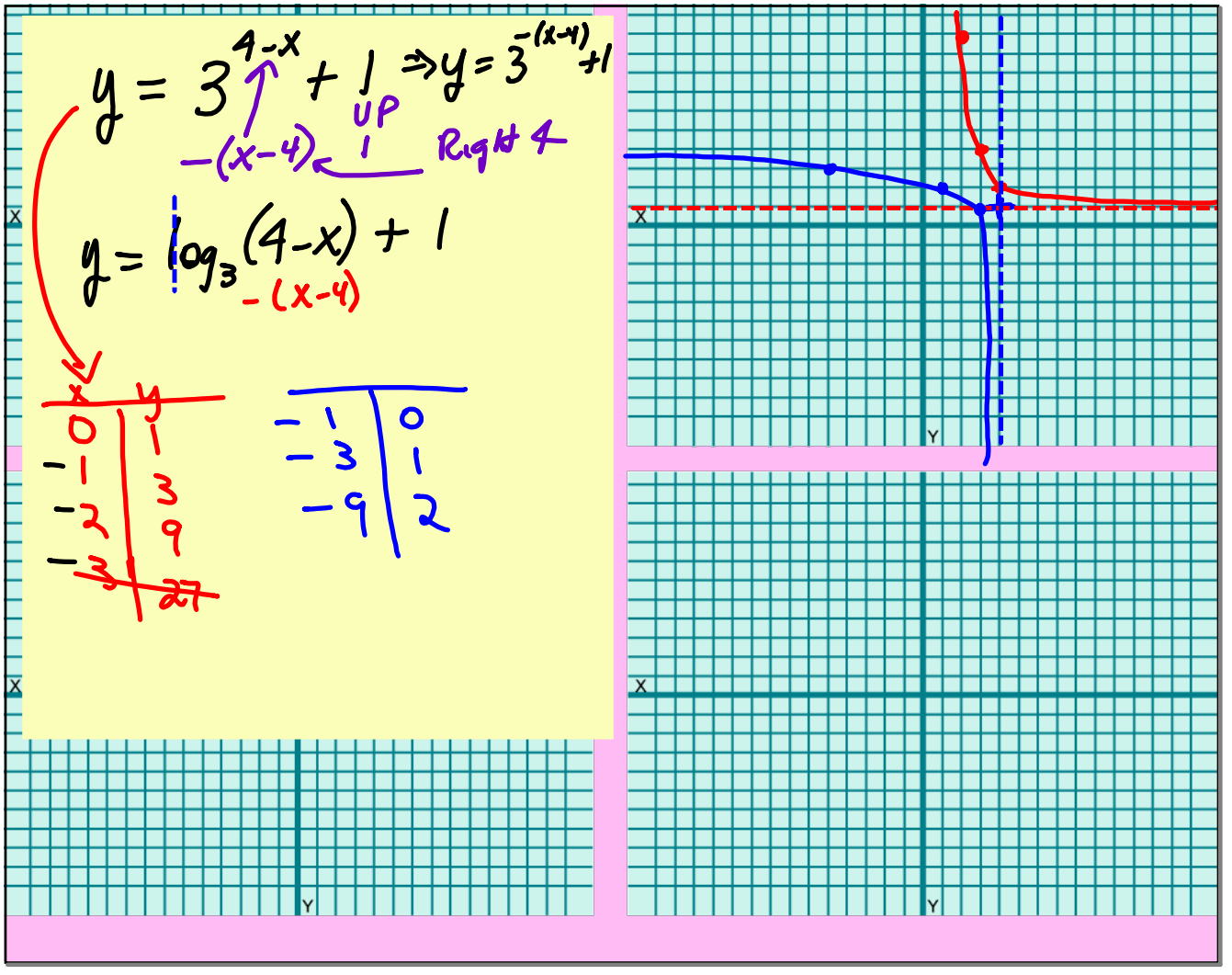

With graphing calculator

#4 = one log

$\log_7 x = -2$

$7^{\log_7 x} = 7^{-2}$

$x = \frac{1}{49}$

like ctd

$\log_9 \frac{1}{3} = x$

$9^{\log_9 \frac{1}{3}} = 9^x$

$\frac{1}{3^1} = 9^x$

$3^{-1} = 3^{2x}$

$-1 = 2x$

$-\frac{1}{2} = x$

#5 multiple logs

1) Use properties to change each side to one log
2) Exponentiate

5(e) $2\left[\frac{1}{2}(2\log 4 - 3\log 2)\right] = \log x$

$2\log 4^2 - 3\log 2^3 = 2\cdot\log x^2$

$\log 16 - \log 8 = \log x^2$

$\log\left(\frac{16}{8}\right) = \log x^2$

$\log 2 = \log x^2$

$10^{\log 2} = 10^{\log x^2}$

$2 = x^2$

$\pm\sqrt{2} = x$