January 31, 2023

Log Review

#1-3 No graphing calculator.

2) $\left(\frac{1}{25}\right)^{x+2} = \sqrt[3]{5^x}$

$\left(\frac{1}{5^2}\right)^{x+2} = 5^{x/3}$

$\left(5^{-2}\right)^{x+2} = 5^{x/3}$

$5^{-2x-4} = 5^{x/3}$

3 $\left[-2x-4 = \frac{x}{3}\right]$

$-6x-12 = x$

$\frac{-12}{7} = \frac{7x}{7}$

Make common bases

3/ $\log_6 216 =$

$\log_6 6^3 = 3$

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

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

$\ln e^{3187} = 3187$

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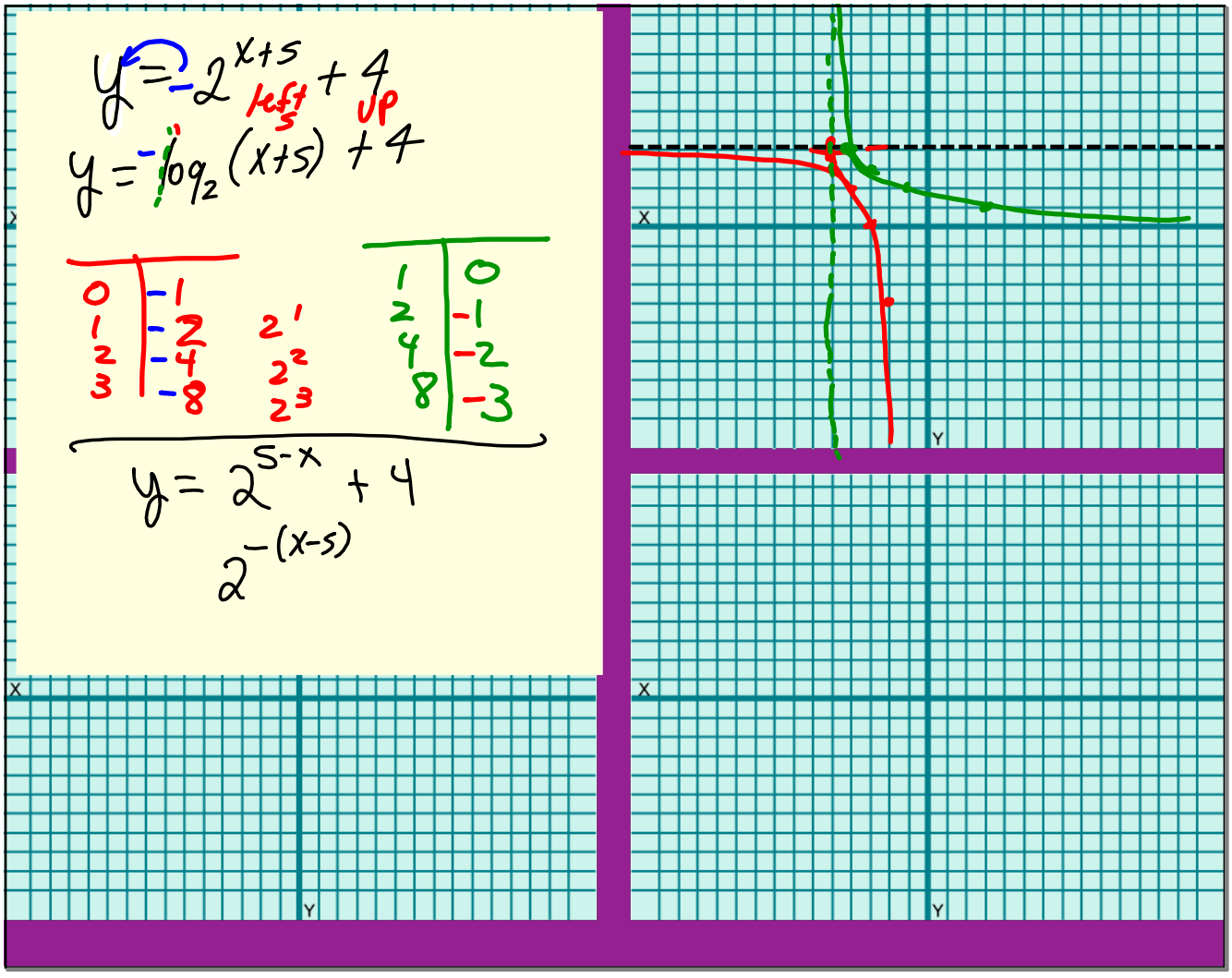

Solving equations with logs

1) Get one log on each side using properties

2) Exponentiate

$\log_2 x + \log_2 (x+3) = \log_2 28$

$\log_2 (x(x+3)) = \log_2 28$

$2^{\log_2 (x^2+3x)} = 2^{\log_2 28}$

$x^2+3x = 28$

$x^2+3x-28 = 0$

$(x+7)(x-4) = 0$

$x = -7 \quad x = 4$ ⟸ Check

4) $\log_3 x = 5$

$3^{\log_3 x} = 3^5$

$x = 3^5 = 243$