BOARD NOTES

19 FEBRUARY 2020

2A.5 (B) formulate exponential and logarithmic equations that model real-world situations, including exponential relationships written in recursive notation;

2A.5 (D) solve exponential equations of the form $y = ab^x$ where a is a nonzero real number and b is greater than zero and not equal to one and single logarithmic equations having real solutions;

2A.5 (E) determine the reasonableness of a solution to a logarithmic equation.

We will be able to expand or condense logarithms using the Laws of Logarithms.

WHAT WE NEED:

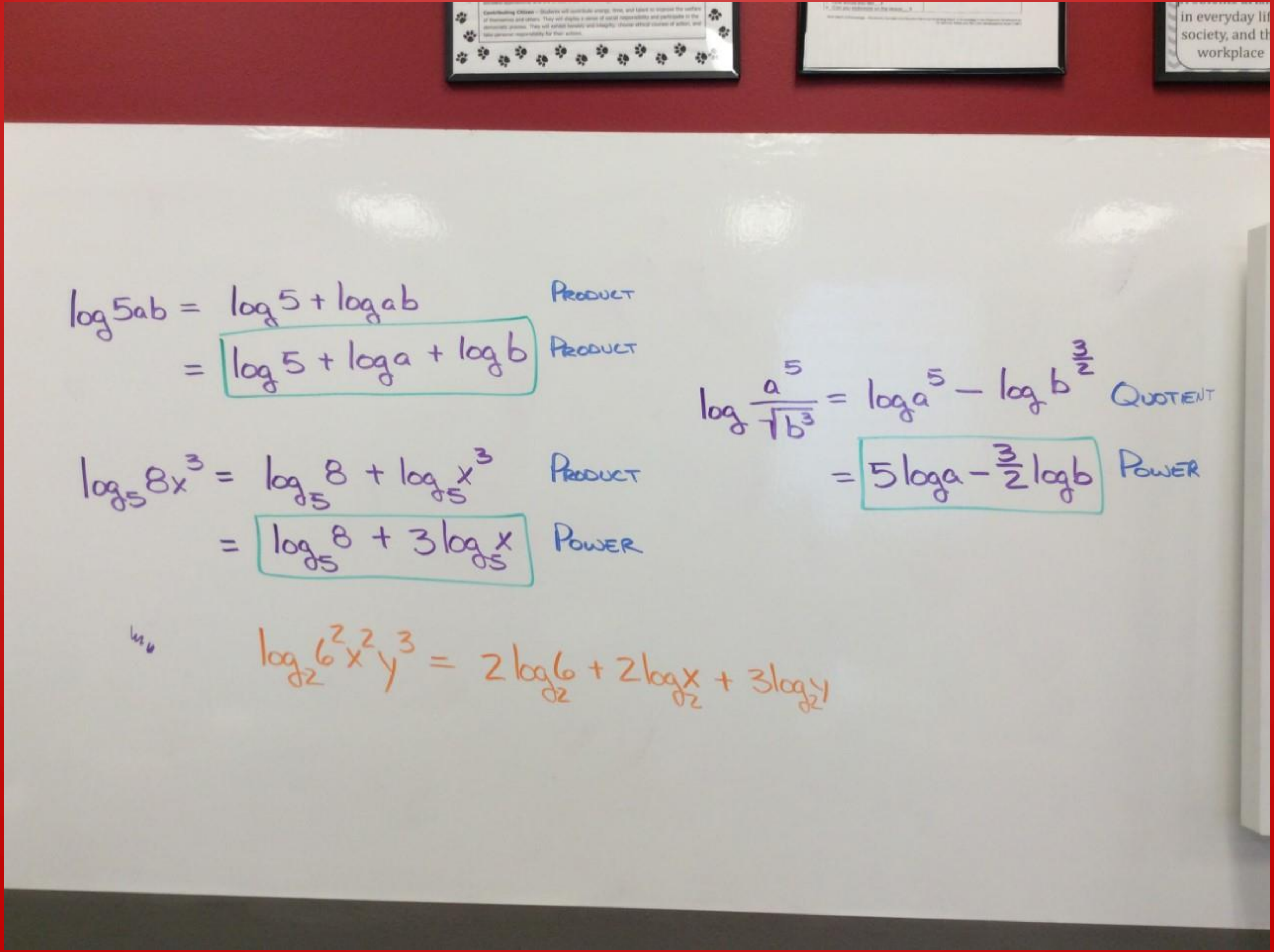
- TI-84
- Laws of Exponents
- Definition of Exponential
- Definition of Logarithmic

I WILL BE ABLE TO COMPLETE MY HOMEWORK GIVEN THE

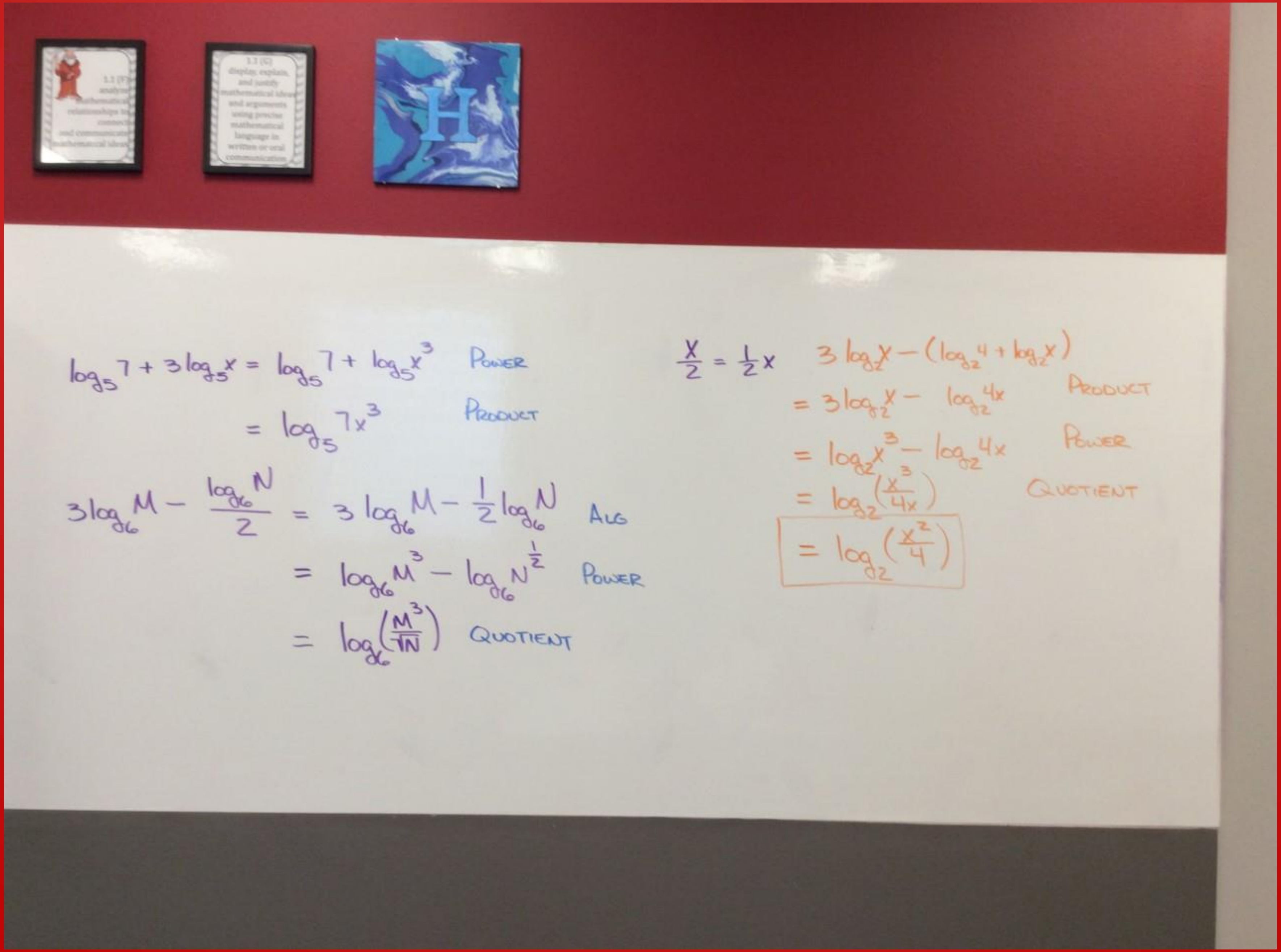
- Equation

Laws of Logarithms

- Product: $\log_b MN = \log_b M + \log_b N$
- Quotient: $\log_b \frac{M}{N} = \log_b M - \log_b N$
- Power: $\log_b M^k = k \log_b M$
- Change of Base: $\log_b M = \frac{\log_a M}{\log_a b} = \frac{\log M}{\log b} = \frac{\ln M}{\ln b}$


$\log 5ab = \log 5 + \log ab$
PRODUCT
$= \log 5 + \log a + \log b$
PRODUCT
$\log_5 8x^3 = \log_5 8 + \log_5 x^3$
PRODUCT
$= \log_5 8 + 3\log_5 x$
POWER
$\log \frac{a^5}{\sqrt{b^3}} = \log a^5 - \log b^{\frac{3}{2}}$
QUOTIENT
$= 5\log a - \frac{3}{2}\log b$
POWER
$\log_2 6^2 x^2 y^3 = 2\log_2 6 + 2\log_2 x + 3\log_2 y$

BORGER INDEPENDENT SCHOOL DISTRICT 1926



days till Xmas

$$2(\log_3 32 - \log_3 8) + \frac{1}{3}\log_3 \frac{1}{64}$$

$$= 2\log_3\left(\frac{32}{8}\right) + \frac{1}{3}\log_3 \frac{1}{64}$$ QUOTIENT

$$= \log_3 4^2 + \log_3 \sqrt[3]{\frac{1}{64}}$$ POWER

$$= \log_3 4^2 + \log_3 \frac{1}{4}$$ ALG

$$= \log_3 \frac{4^2}{4}$$ PRODUC

$$= \boxed{\log_3 4}$$

$$\log_2 25 = \frac{\log 25}{\log 2} = \frac{\ln 25}{\ln 2}$$

~~$\log \frac{25}{2}$~~