Advanced Algebra
10.2 Logarithms

DATE: 12/4

TI-Nspire Introduction to Logs

- Use a TI-Nspire calculator to evaluate the following:

1a. $\log_2 64 =$ 6 1b. $2^6 =$ 64

2a. $\log_2 32 =$ 5 2b. $2^5 =$ 32

3a. $\log_2 \frac{1}{64} =$ -6 3b. $2^{-6} =$ $\frac{1}{64}$

4a. $\log_3 27 =$ 3 4b. $3^3 =$ 27

5a. $\log_5 25 =$ 2 5b. $5^2 =$ 25

6a. $\log_5 625 =$ 4 6b. $5^4 =$ 625

7a. $\log_5 \frac{1}{25} =$ -2 7b. $5^{-2} =$ $\frac{1}{25}$

8a. $\log_{10} 10{,}000 =$ 4 8b. $10^4 =$ 10,000

7a. $\log_5 \frac{1}{25} =$ _____ 7b. $5^{\_\_} =$ _____

8a. $\log_{10} 10{,}000 =$ _____ 8b. _____ = _____

The pattern above leads to the Logarithm Rule:

If $\log_b x = y$, then $b^{y} = x$.

- Now evaluate each expression without using a calculator!

9. $\log_2 16 = 4$ b/c $2^4 = 16$ 10. $\log_3 9 = 2$ b/c $3^2 = 9$ 11. $\log_5 125 = 3$ b/c $5^3 = 125$

12. $\log_7 49 = 2$ b/c $7^2 = 49$ 13. $\log_{10} 1000 = 3$ b/c $10^3 = 1000$ 14. $\log_2 \frac{1}{8} = -3$ b/c $2^{-3} = \frac{1}{8}$

15. $\log_9 27 = \frac{3}{2}$ b/c $9^{3/2} = 3^{2 \cdot \frac{3}{2}} = 3^{\frac{6}{2}} = 3^3 = 27$