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Advanced Algebra
10.2 Logarithms

DATE: 12/4

TI-Nspire Introduction to Logs

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

1a. $\log_2 64 = \underline{6}$

1b. $2^6 = \underline{64}$

2a. $\log_2 32 = \underline{5}$

2b. $2^5 = \underline{32}$

3a. $\log_2 \frac{1}{64} = \underline{-6}$

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

4a. $\log_3 27 = \underline{3}$

4b. $3^3 = \underline{27}$

5a. $\log_5 25 = \underline{2}$

5b. $5^2 = \underline{25}$

6a. $\log_5 625 = \underline{4}$

6b. $5^4 = \underline{625}$

7a. $\log_5 \frac{1}{25} = \underline{-2}$

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

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

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



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

8a. $\log_{10} 10,000 = \underline{\hspace{2cm}}$ 8b. $\underline{\hspace{1cm}} = \underline{\hspace{2cm}}$

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 $9^{3/2} = 3^{2 \cdot \frac{3}{2}} = 3^{\frac{6}{2}} = 3^3 = 27$