Precalculus

3-02 Logarithmic Functions

$$f(x) = \log_b x$$

- "log base b of x"
- Logarithms are _____of _____functions

$$y = \log_b x \leftrightarrow x = b^y$$

- Logarithms are _____!

Evaluate

- Think "What _____of the base gives the big number?"

$\log_5 125$ $\log_2 \frac{1}{64}$

Calculator

- LOG → _____ → log
- LN → _____ → ln

Use your calculator to evaluate $\log 300$

Properties of Logarithms

- $\log_b 1 = 0$
- $\log_b b = 1$
- $\log_b b^x = x$
- If $\log_b x = \log_b y$, then $x = y$

Simplify $\log_5 1$ $\log_e e$

$8^{\log_8 30}$

Solve $\log_3(x^2 + 4) = \log_3 29$