## Algebra 2

## 6-03 Rewrite Exponential as Logarithmic Functions (6.3)

## Logarithms

- Logarithms are $\qquad$
- $\log _{b} a=$ $\qquad$ of $b$ to get $a$
$\log _{3} 81$ $\log _{3} 3$


## Calculator has two logs

- Log: $\log =\log _{10}$
- Log: $\ln =\log _{e}$
- (Some calculators can do log of any base.)
$\log 6 \quad \ln \frac{1}{3}$

Definition of Logarithm with Base $b$

$$
\log _{b} y=x \Leftrightarrow b^{x}=y
$$

- Read as "log base $b$ of $y$ equals $x$ "
- Logs = $\qquad$ !!
- Logs and exponentials are $\qquad$
- They $\qquad$ each other
- They $\qquad$ each other out
Rewrite as an exponential: $\log _{3} 9=2$

Rewrite as a log: $6^{2}=36$

## Simplify log expressions

If exponential with base $b$ and $\log$ with base $b$ are inside each other, they
$\square$
$312 \# 1,3,5,7,9,11,13,15,17,23,25,31,33,35,37,75,77,79,83,85=20$

