

$$a^x a^y = a^{x+y}$$

$$\frac{a^x}{a^y} = a^{x-y}$$

$$(a^x)^y = a^{xy}$$

$$(ab)^x = a^x b^x$$

Ex: $2^8 5^6 =$

Suppose $f(x) = a^x$
 $y = a^x$

Find f^{-1}

Switch x and y : $a^y = x$

$\log_a x = y$ iff $a^y = x$

$$f^{-1}(f(x)) =$$

$$f(f^{-1}(x)) =$$

$$\log_a x + \log_a y = \log_a(xy)$$

$$\log_a x - \log_a y = \log_a\left(\frac{x}{y}\right)$$

$$\log_a x^r = r \log_a(x)$$

$$\log_a a =$$

$$\log_a 1 =$$

$$\log_a 0 =$$

Defn: $\ln(x) = \log_e x$

$$\log_a x = \frac{\ln(x)}{\ln(a)}$$

Note: $\log_a x + \log_a y \neq \log_a(x + y)$