

Exponential \longleftrightarrow Log

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

Switch forms

1. $b^2 = k$

$\log_b k = 2$

2. $\log_7 49 = 2$

$7^2 = 49$

3. $a^k = m$

$\log_a m = k$

4. $\log_{16} 8 = 1/2$

$16^{1/2} = 8$

5. $5^3 = 125$

$\log_5 125 = 3$

examples

6. $\log_7 343 = x$

$7^x = 343 \rightarrow \boxed{x=3}$

9. $\log_{10} 10 = x$

$10^x = 10 \rightarrow \boxed{x=1}$

7. $\log_3 x = 4$

$3^4 = x$

$\boxed{81=x}$

10. $\log_7 1 = x$

$7^x = 1 \rightarrow \boxed{x=0}$

8. $\log_2 32 = x$

$2^x = 32$

$\boxed{x=5}$

11. $\log_9 9^3 = x$

$9^x = 9^3$

$\boxed{x=3}$

12. $\log_{49} 7 = x$

$49^x = 7^1$

$7^{2x} = 7^1$

$2x = 1$

$\boxed{x=1/2}$