Logarithms

$\log_a n$ ("said log base a of n") is equivalent to $a^x = n$.

The log function outputs the **missing power**.

Examples

$\log_5 25 =$

$\log_3 81 =$

$\log_2 32 =$

$\log_{10} 1000 =$

$\log_4 1 =$

$\log_4 4 =$

$\log_2 \left(\frac{1}{2}\right) =$

$\log_3 \left(\frac{1}{27}\right) =$

$\log_2 \left(\frac{1}{16}\right) =$

$\log_a (a^3) =$

$\log_4 (-1) =$

With your calculator…

$\log_{\square} \square$

$\log_3 7 =$

$\log_5 0.3 =$

ln

$\ln 10 =$

$\ln e =$

log

$\log 100 =$

Exercise 14D Pg 320-321

Extension

1 [MAT 2015 1J] Which is the largest of the following numbers?

A) $\frac{\sqrt{7}}{2}$ B) $\frac{5}{4}$ C) $\frac{\sqrt{10!}}{3(6!)}$

D) $\frac{\log_2 30}{\log_3 85}$ E) $\frac{1+\sqrt{6}}{3}$

2 *[MAT 2013 1F]* Three *positive* numbers a, b, c satisfy

$$\log_b a = 2$$
$$\log_b (c-3) = 3$$
$$\log_a (c+5) = 2$$

This information:

A) specifies a uniquely;

B) is satisfied by two values of a;

C) is satisfied by infinitely many values of a;

D) is contradictory