$-3 \Rightarrow +3$

$\frac{3x}{3}$

$\sqrt{x^2}$

Logarithmic Functions

$$2^x = 32 \Rightarrow x = 5$$

$$\log_2 32 = x$$

$y = \log_a x$ if and only if $x = a^y$

$y = \log_a x$ if and only if $x = a^y$

$f(x) = \log_3 1 \rightarrow 3^x = 1 \rightarrow x = 0$

$f(x) = \log_4 2 \rightarrow 4^x = 2 \rightarrow x = 1/2$

$\sqrt[m]{x^n} = x^{n/m}$

$y = \log_a x$ if and only if $x = a^y$

$f(x) = \log_{10} \frac{1}{100} \Rightarrow 10^x = \frac{1}{100} \Rightarrow x = -2$

$f(x) = \log_{10} 10 \Rightarrow 10^x = 10 \Rightarrow x = 1$

$f(x) = \log_{10} 2.5 \Rightarrow .397$

$f(x) = \log_{10} -2 \Rightarrow$ error $\Rightarrow 10^x = -2$

1) $\log_a 1 = 0 \iff a^0 = 1$

2) $\log_a a = 1 \qquad a^1 = a$

3) $\log_a a^x = x$ and $a^{\log_a x} = x$

4) $\log_a x = \log_a y \iff x = y$

ex 4)

$$\log_3 10 = \log_3 (x+2)$$

$$10 = x+2$$

$$8 = x$$

Natural Logarithmic functions

$\log_e = LN$

Homework

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#3-33

Divisible by 3