Happy Tuesday, October 25!

Do Now:

Rewrite in exponential form:

$$f(x) = -\log_6(x-3)$$

$y = \log_{\frac{1}{6}}(x-3)$

$$\boxed{\begin{array}{c} \left(\frac{1}{6}\right)^y = x-3 \\ \left(\frac{1}{6}\right)^y + 3 = x \end{array}}$$

$y = -\log_6(x-3)$

$-y = \log_6(x-3)$

$6^{-y} = (x-3)$

$\left(\frac{1}{6}\right)^y = x-3$

$\left(\frac{1}{6}\right)^y + 3 = x$

Oct 25-7:38 AM

Quiz Thursday:

U3LT1: I can identify properties of exponential functions and graph them without a calculator

U3LT2: I can identify properties of a logarithmic function and I can graph them.

U3LT3: I can apply properties of logarithms and exponents to condense and expand expressions.

Oct 25-7:43 AM

First of all...negative exponents?

★ $2^{-4} = \dfrac{1}{16}$ $\left(\dfrac{2}{1}\right)^{-4}$ $\left(\dfrac{1}{2}\right)^4 = \dfrac{1^4}{2^4}$ $\left(\dfrac{2}{3}\right)^{-2} = \dfrac{9}{4}$ $\dfrac{3^2}{2^2}$

★ $3^{-2} = \dfrac{1}{3^2} \rightarrow \dfrac{1}{9}$

$(-3)^{-2} = \dfrac{1}{9}$ $\dfrac{1^2}{(-3)^2} = \dfrac{1}{9}$

★ $\left(\dfrac{1}{4}\right)^{-3} = 64$

★ $10^{-4} = \dfrac{1}{10000}$

$\left(\dfrac{4}{1}\right)^3 = 64$

$10^1 = 10$
$10^2 = 100$
$10^3 = 1000$

Oct 25-8:22 AM

Fractional Exponents??

$\sqrt[2]{e^7} = e^{7/2}$

$x^{-\frac{1}{3}} = \sqrt[3]{x^{-1}}$

$= \sqrt[3]{\dfrac{1}{x}}$

Oct 25-8:28 AM

Graphing.

Stop freaking out, make a table :)

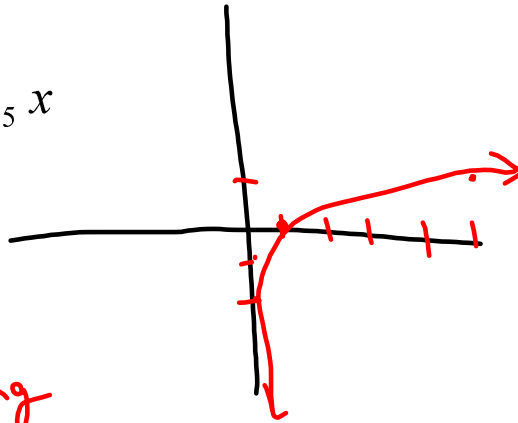$f(x) = \log_5 x$

$5^y = X$

→ $(1,0)$

Increasing

→ VA: $x = 0$

X	y
1/25	-2
1/5	-1
1	0
5	1
25	2

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$f(x) = \log_5 x + 2$　　　　　　$f(x) = \log_5 (x - 2)$

$y - 2 = \log_5 X$

$5^{y-2} = X$

X	y
1/25	0
1/5	1
1	2
5	3

VA: $X = 0$
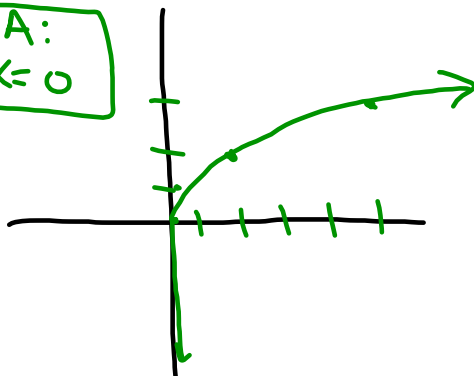
$5^y = X - 2$

$5^y + 2 = X$

X	y
2 1/25	-2
2 1/5	-1
3	0
7	1
27	2

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3

VA
x=0

$$f(x) = -\log_5 x$$

$$y = \log_{\frac{1}{5}} x$$

$$\frac{1}{5}^y = x$$

$$6^x = 1$$

x	y
25	-2
5	-1
1	0
1/5	1
1/25	2
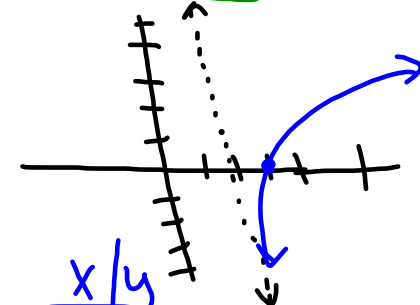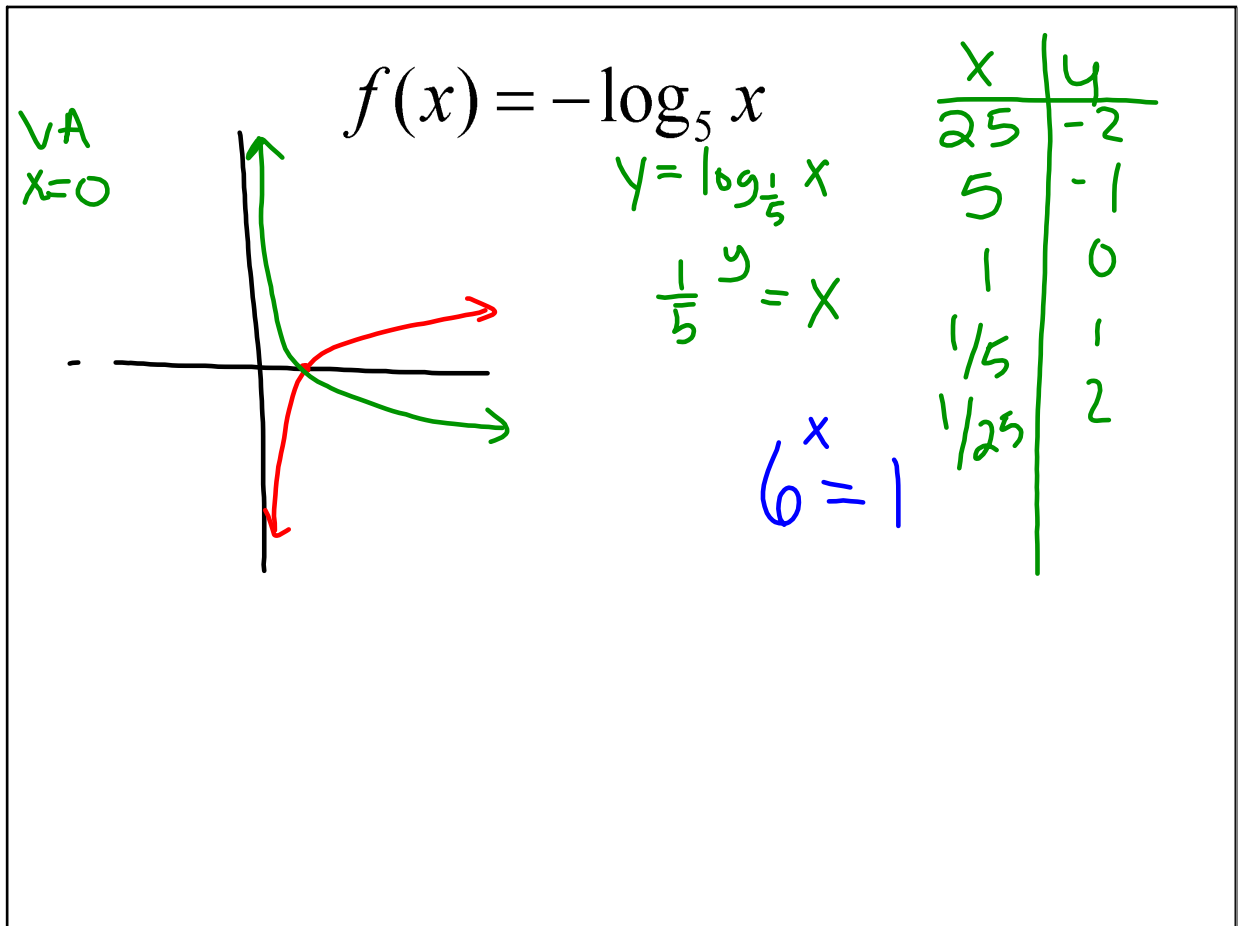
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Card Sort!

Find your graph, asymptote, description, and x or y intercept!

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