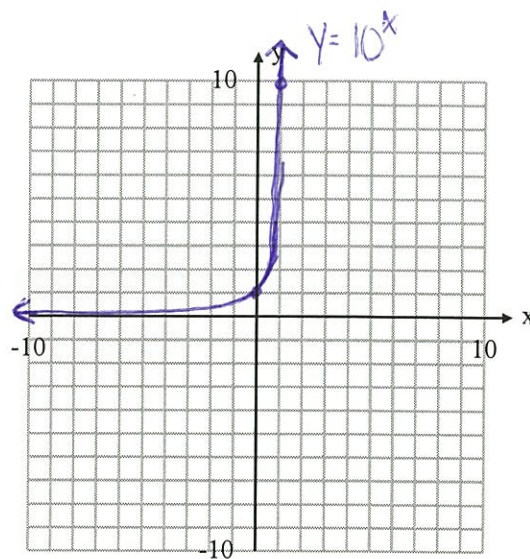


Discovering Logarithms Activity

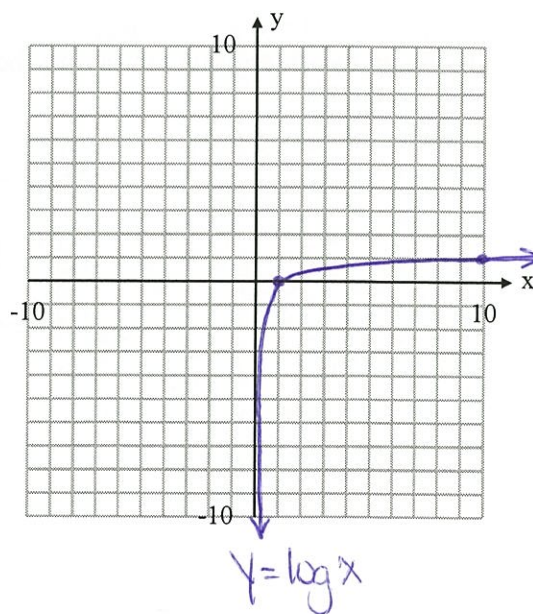
Key

1. Graph $y = 10^x$ and state the following characteristics:

Domain	$x \in \mathbb{R}$
Range	$y > 0$
X-intercept(s)	none
Y-intercept(s)	$(0, 1)$
End Behaviour	QII to QI
Equation of asymptote	$y = 0$

2. Graph $y = \log_{10} x$ and state the following characteristics:

Domain	$x > 0$
Range	$y \in \mathbb{R}$
X-intercept(s)	$(1, 0)$
Y-intercept(s)	none
End Behaviour	QIV to QI
Equation of asymptote	$x = 0$



3. What relationship do you see between the domain and range of $y = 10^x$ and the domain and range of $y = \log_{10} x$?

They switch.

	$y = 10^x$	$y = \log_{10} x$
Domain	$x \in \mathbb{R}$	$x > 0$
Range	$y > 0$	$y \in \mathbb{R}$

4. What did you notice about the intercepts on each graph?

They switch.

	$y = 10^x$	$y = \log_{10} x$
x-int	none	(1, 0)
y-int	(0, 1)	none

5. Where $y = 10^x$ has a horizontal asymptote, $y = \log_{10} x$ has a vertical asymptote

6. These two equations are saying the same thing. Deduce the meaning of a logarithm.

$$\log_2 8 = 3 \quad 2^3 = 8$$

$\log_2 8$ means "2 to the power of what, is 8?" or "What exponent on 2 will make 8?"