

Graphs of Exponential & Logarithmic Functions

1. Graph the exponential function and its inverse on the grid.

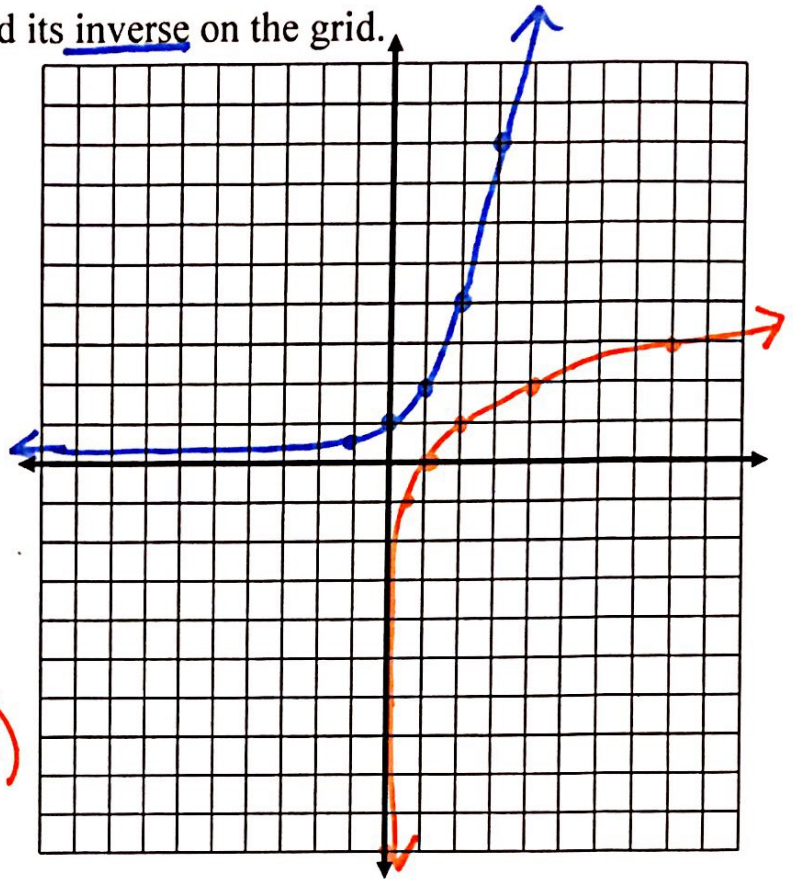
$$y = 2^x \quad \text{and} \quad y = \log_2 x$$

x	y
-1	$\frac{1}{2}$
0	1
1	2
2	4
3	8

D: $(-\infty, \infty)$
R: $(0, \infty)$

x	y
$\frac{1}{2}$	-1
1	0
2	1
4	2
8	3

D: $(0, \infty)$
R: $(-\infty, \infty)$

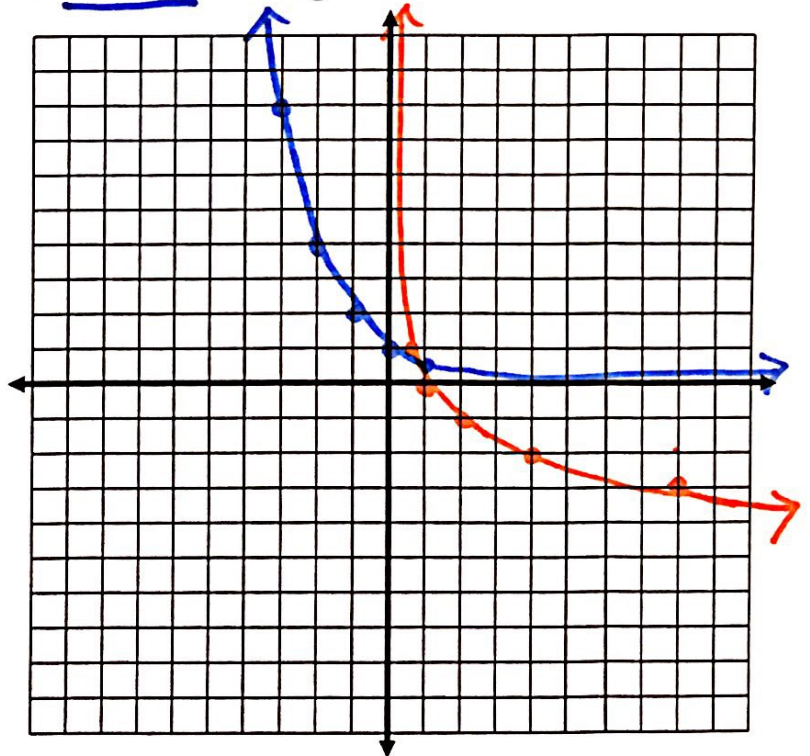


2. Graph the exponential function and its inverse on the grid.

$$y = \left(\frac{1}{2}\right)^x \quad \text{and} \quad y = \log_{\frac{1}{2}} x$$

x	y
-3	8
-2	4
-1	2
0	1
1	$\frac{1}{2}$

x	y
8	-3
4	-2
2	-1
1	0
$\frac{1}{2}$	1



3. List the characteristic points of $y = \log_3 x$.

x	y
1	0
3	1
9	2
27	3

x	y
1	-6
3	-5
9	-4
27	-3

Determine the transformations as compared to the base graph, $y = \log_{10} x$. Graph each function on the coordinate planes provided. Determine the domain, range, and asymptotes of each transformation.

4. $y = \log_3 x - 6$	5. $y = +\log_3(x + 2)$	6. $y = \frac{1}{2}\log_3 x$
Transformations: Down 6	Transformations: Left 2	Transformations:
Asymptote: $x = 0$	Asymptote: $x = -2$	Asymptote:
Domain: $(0, \infty)$	Domain: $(-2, \infty)$	Domain:
Range: $(-\infty, \infty)$	Range: $(-\infty, \infty)$	Range:
