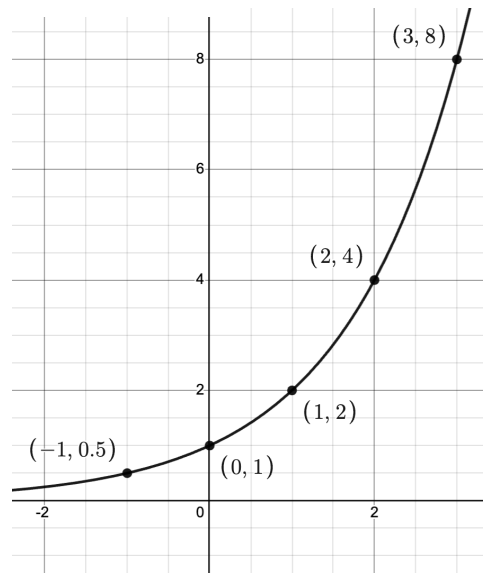


Write your questions
and thoughts here!Exponential $f(x) = 2^x$

x	f(x)

Logarithmic $g(x) = \log_2 x$

x	g(x)

**BIG IDEA**

- The graphs are a reflection in the function
- The domain of the exponential function is the range of the logarithmic function.
- The range of the exponential function is the domain of the logarithmic function.
- The operations undo each other (like multiplication and division)
- $f(g(x)) = g(f(x)) = x$

Describe the function as exponential or logarithmic and then find points for its inverse, $g(x)$

Ex 1:

x	f(x)
-1	$\frac{1}{3}$
0	1
1	3
2	9
3	27

x	g(x)

Ex 2:

x	f(x)
$\frac{1}{4}$	-1
1	0
4	1
16	2
64	4

x	g(x)

Write your questions
and thoughts here!

INVERSES UNDO EACH OTHER

So are the following functions inverses of each other?

In other words, does $f(g(x)) = g(f(x)) = x$

Find the inverse of each of the following.

Ex 3:

Ex 4:

Try these:

1. Determine if $f(x)$ and $g(x)$ are inverses.
2. Find the inverse of $f(x)$.

2.10 Inverses of Exponential Functions

AP Precalculus

2.10 Practice

Directions: Describe the function, $f(x)$ (exponential, logarithmic, or neither), how you know why it is that function and then find points for its inverse, $g(x)$.

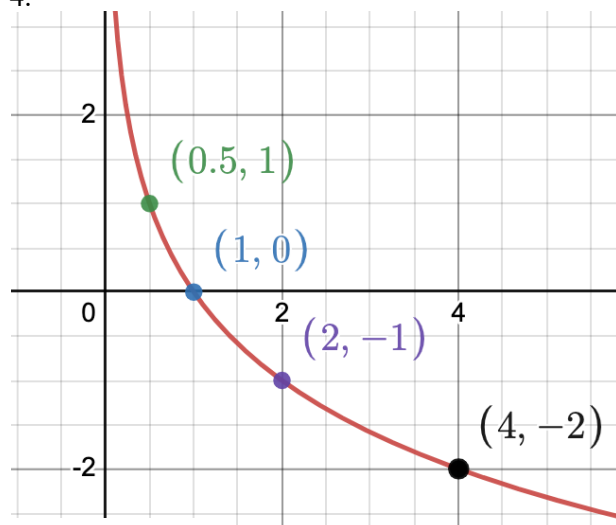
1)		2)	
x	f(x)	x	g(x)
3	8	1/9	-2
4	16	1/3	-1
5	32	1	0
6	64	3	1

3.

x	f(x)
0	1
1	4
2	7
3	10

x	g(x)

4.



x	g(x)

Directions: Determine if f(x) and g(x) are inverses.

5. $f(x) = 2 \cdot \log_2 x$
 $g(x) = 2^{2x}$

6. $f(x) = 10^{0.25x}$
 $g(x) = 4 \cdot \log x$

7. $f(x) = 5^{\frac{x}{8}}$
 $g(x) = 8 \cdot \log_5 x$

Directions: Find the inverse of the given function.

8. $h(x) = 4^{5x}$

9. $m(x) = 5 \cdot \log_2 x$

10. $a(x) = \frac{1}{4} \cdot \log_8 x$

11. $b(x) = 10^{\frac{3}{4}x}$

2.10 Inverses of Exponential Functions

2.10 Test Prep

Which of the following represent a possible function that is the inverse of $f(x) = 0.25^x$.

a.

X	f(x)
-3	64
-2	16
-1	4
0	1

b.

X	f(x)
4	-1
1	0
$\frac{1}{4}$	1
$\frac{1}{16}$	2

c.



d.

