Study Guide and Intervention Verifying Inverses of Functions

Example

answer.

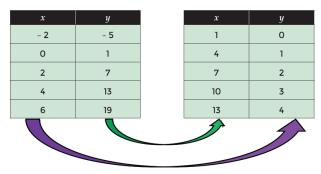
Determine whether or not the tables represent functions that are inverses. Justify your

x	у
- 2	- 5
0	1
2	7
4	13
6	19

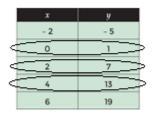
x	у
1	0
4	1
7	2
10	3
13	4

Solution

Step 1 Compare the domain of one table with the range of the other and vice versa.



Step 2 Evaluate the similar portions of the domain and range of the left hand table and the range and domain of the right hand table.



	x	у	
4		0	Þ
	4	1	
4	7	2	Þ
	10	3	
4	13	4	Þ

Exercises

Indicate if the data in each pair of tables represent inverse functions or not.

f(x)

-3

-1

2

-2

x

5

3

-2

-6

1.

x	f(x)	
-3	5	
-1	3	
2	-2	
-2	-6	

2.

x	f(x)	
-6	5	
0	1	
2	-8	
10	-15	

x	f(x)	
6	-5	
0	-1	
-2	8	
-10	15	

3.

x	f(x)	x	
2	10	-2	
4	12	-4	
6	14	-6	
8	16	-8	

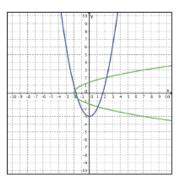
4.

x	f(x)
-7	-1
0	0
2	1
4	2

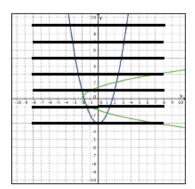
x	f(x)
-1	-7
0	0
1	2
2	4

Study Guide and Intervention Verifying Inverses of Functions (cont.)

Example Each graph shows a function and its inverse. Determine how the domain of f(x) should be restricted so the inverse is also a function.



Draw perpendicular lines on one of the graphs to see where Step 1 the line stops intersecting the graph in two places.



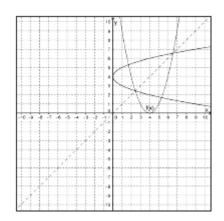
Step 2 The last line should pass through the vertex. The vertex will help determine the domain restrictions to insure that the inverse will be a function.

> The vertex is at (0,-3). Therefore, the domain restrictions will occur at -3. $x \ge -3$ or $x \le -3$

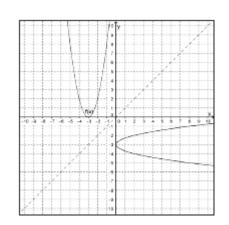
Exercises

Each graph shows a function and its inverse. Determine how the domain of f(x) should be restricted so the inverse is also a function.

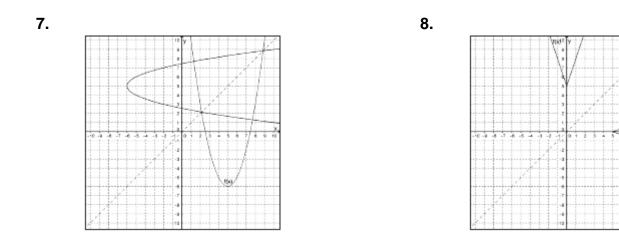
5.



6.

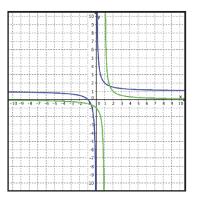


Study Guide and Intervention Verifying Inverses of Functions (cont.)

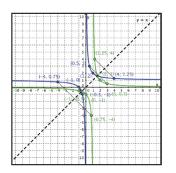


Example

Indicate if each graph represents an inverse relationship or not. Justify your answer.



Step 1 Graph the line y = x on the coordinate plane. Choose ordered pairs that appear to be (x, y) and (y, x). Draw line segments to connect the related points.



Step 2 Evaluate whether the line y = x is a line of symmetry between the two graphs.

The graphs appear to be inverses because they are reflections of one another over the line y = x.

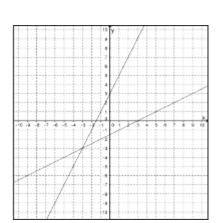
10.

Study Guide and Intervention Verifying Inverses of Functions (cont.)

Exercises

Indicate if each graph represents an inverse relationship or not.

9.



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		5 -4	-3 -2	1		2 5	4	5.0	7	6	•	1
		5 -4	-3 -2	1		2 5		5 0			9	1
		5 -4	-3 -2	1		2 5		5 0			9	
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		5 -4	-3 -2	1				+			9	

12.

