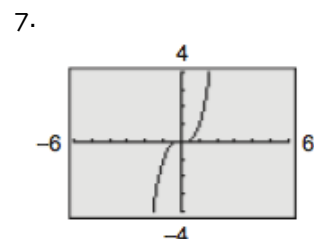
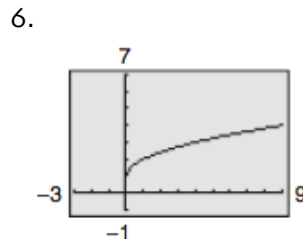
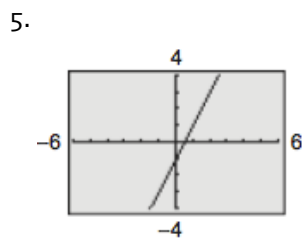
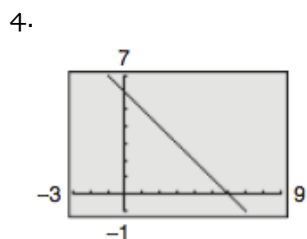
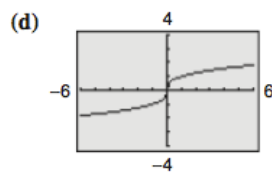
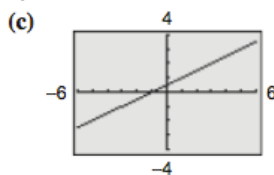
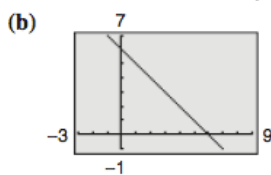
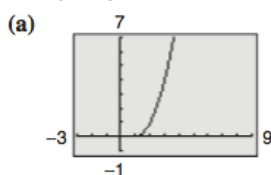


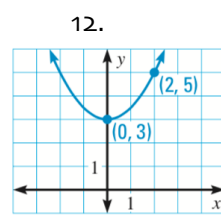
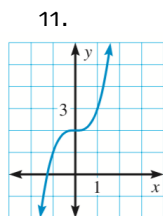
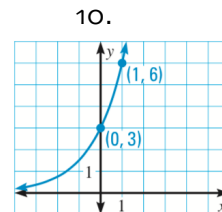
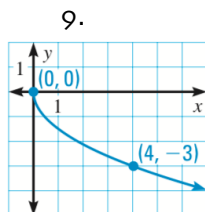
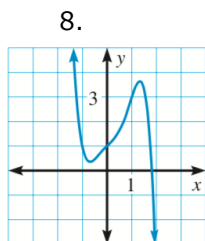
A2: Inverse Functions Worksheet

- I.
- How can you show two functions are inverses algebraically?
 - How can you show two functions are inverses graphically?
 - How can you show two functions are inverses numerically?

II. Match the graph of the function with the graph of its inverse function.



III. Use the graph to determine whether the inverse is a function. Explain your reasoning.



IV. Are f & g inverse functions? Prove your answer algebraically.

13. $f(x) = -x^5$; $g(x) = \sqrt[5]{x+2} - 1$

14. $g(x) = 2x - 4$; $f(x) = \frac{4+x}{2}$

15. $h(x) = -(x+2)^3$; $f(x) = -\sqrt[3]{x} - 2$

16. $f(x) = x + 5$; $h(x) = \frac{8+7x}{4}$

V. Could f & g be inverse functions? Prove your answer numerically. Justify your answer.

17.

x	$f(x)$
2	-4
0	5
1	10

x	$g(x)$
-4	2
5	0
10	1

VI. Find the inverse function.

18. $f(x) = 5x + 12$

19. $f(x) = \frac{7x + 18}{2}$

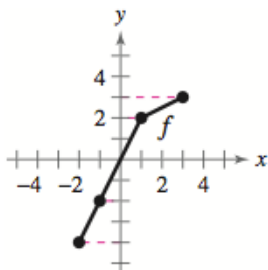
20. $g(x) = 2(x - 2)^3$

21. $g(x) = \frac{5}{x} - 3$

VII.

22.

- a. Use the graph of the function to complete the table for f^{-1} .
b. Then use the table to sketch f^{-1} .



x	$f^{-1}(x)$
-4	
-2	
2	
3	

ANSWERS

1. Show $(f \circ g)(x) = x$ and $(g \circ f)(x) = x$.
2. Two functions are inverses if their graphs are reflections about the line $y=x$.
3. If $f(x)$ contains points (x, y) and $g(x)$ contains points (y, x) , then $f(x)$ and $g(x)$ are inverses.
4. B
5. C
6. A
7. D
8. No, the inverse is not a function because the graph does not pass the HLT.
9. Yes, the inverse is a function because the graph does pass the HLT.
10. Yes, the inverse is a function because the graph does pass the HLT.
11. Yes, the inverse is a function because the graph does pass the HLT.
12. No, the inverse is not a function because the graph does not pass the HLT.
13. No
14. Yes
15. Yes
16. No
17. Yes, $f(x)$ contains points (x, y) and $g(x)$ contains points (y, x) .

18. $f^{-1}(x) = \frac{x-12}{5}$

19. $f^{-1}(x) = \frac{2x-18}{7}$

20. $g^{-1}(x) = 2 + \sqrt[3]{\frac{x}{2}}$

21. $g^{-1}(x) = \frac{5}{x+3}$

22.

a.

x	$f^{-1}(x)$
-4	-2
-2	-1
2	1
3	3

b.

