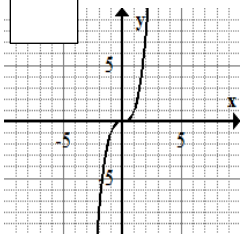
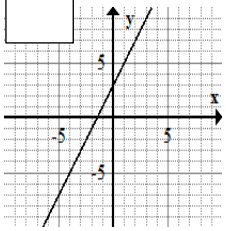
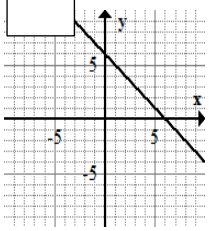
Secondary Math III
Inverse Functions
Assignment 8.2

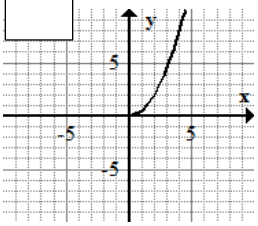
Name: _____
Period: ____

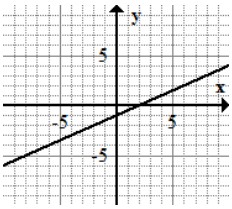
In problems 1 – 4, match the graph of the function with the graph of its inverse function. Write the letter that matches the graph next to the number in the box provided.

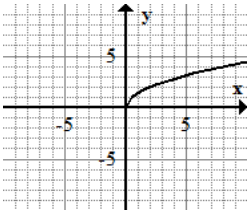
1. 

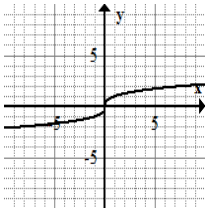
2. 

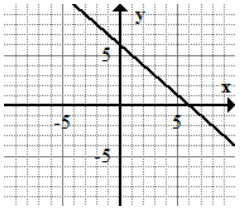
3. 

4. 

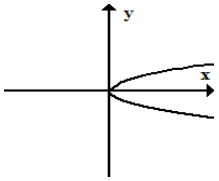
A. 

B. 

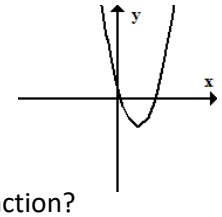
C. 

D. 

For problems 7-12, determine if the graph is that of a function. If so, determine if the function is one-to-one.

5. 

Function?
One-to-one?

6. 

Function?
One-to-one?

7. 

Function?
One-to-one?

For problems 17-20, find $f^{-1}(x)$ algebraically.

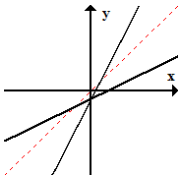
8. $f(x) = x^3 + 1$

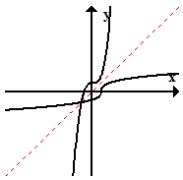
9. $f(x) = 3x - 4$

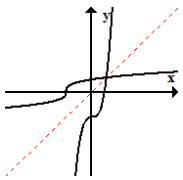
10. $f(x) = \dfrac{x}{x+2}$

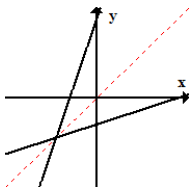
11. $f(x) = \sqrt[3]{3x+7}$

For problems 14-17, decide whether the two functions shown in the graph appear to be inverse functions of each other. If they are inverses of each other write YES. If they are not, write NO. (The line y = x has also been drawn on the graphs)

12. 

13. 

14. 

15. 

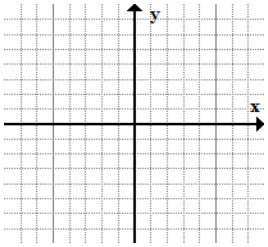
Verify Inverses: Show that f and g are inverse functions by finding and simplifying $f(g(x))$ and $g(f(x))$.

16. $f(x) = 3x - 10$, $g(x) = \frac{x+10}{3}$

17. $f(x) = x^3 + 5$, $g(x) = \sqrt[3]{x-5}$

For problems 18-19, find the inverse and restrict the domain so that the new function is the inverse of f. Graph both f and f^{-1} on the graph provided and state the domains and ranges of both f and f^{-1}.

18. $f(x) = \sqrt{x-4}$



$f^{-1}(x) =$

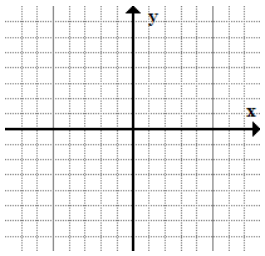
Domain of f:

Range of f :

Domain of f^{-1} :

Range of f^{-1} :

19. $f(x) = \sqrt{x} - 3$



$f^{-1}(x) =$

Domain of f:

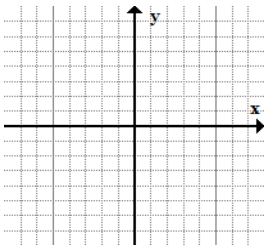
Range of f:

Domain of f^{-1} :

Range of f^{-1} :

For problems 23-26, find the vertex of f and restrict the domain so that it is one-to-one. Then find the inverse function $f^{-1}(x)$. Graph both and state the domains and ranges of both f and f^{-1}.

20. $f(x) = x^2 - 2$



$f^{-1}(x) =$

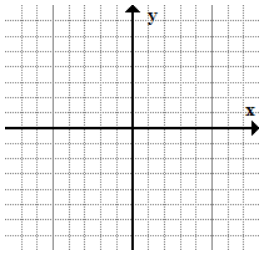
Domain of f:

Range of f:

Domain of f^{-1}:

Range of f^{-1}:

21. $f(x) = -x^2 + 4$



$f^{-1}(x) =$

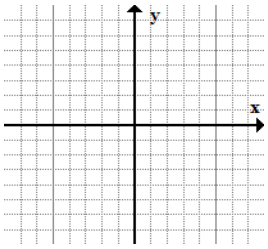
Domain of f:

Range of f:

Domain of f^{-1}:

Range of f^{-1}:

22. $f(x) = (x-2)^2$



$f^{-1}(x) =$

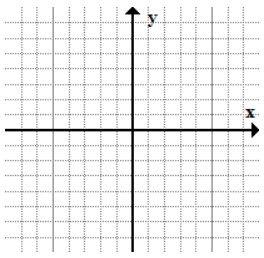
Domain of f:

Range of f:

Domain of f^{-1}:

Range of f^{-1}:

23. $f(x) = (x+3)^2$



$f^{-1}(x) =$

Domain of f:

Range of f:

Domain of f^{-1}:

Range of f^{-1}: