Algebra II Home Work #4 Inverse Functions   Name_____

Find the inverse of each function. Determine whether the inverse (one-to-one) is a function and state its domain and range.

15. $f(x) = \dfrac{5x+9}{6}$	16. $f(x) = (x-4)^2$	17. $f(x) = 5 + \sqrt{x+8}$
$f^{-1}(x) =$ _____ $D:$ _____ $R:$ _____	$f^{-1}(x) =$ _____ $D:$ _____ $R:$ _____	$f^{-1}(x) =$ _____ $D:$ _____ $R:$ _____

Determine by COMPOSITION whether each pair of functions are inverses.

18. $f(x) = \dfrac{5-2x}{9}$ and $g(x) = -\dfrac{9}{2}x + \dfrac{5}{2}$	19. $f(x) = \dfrac{5}{x+1}$ and $g(x) = \dfrac{x-1}{5}$ for $x \neq -1$
20. $f(x) = 3\sqrt{x}$ and $g(x) = \dfrac{1}{3}x^2$ for $x \geq 0$	21. $f(x) = \log\dfrac{x}{2}$ and $g(x) = 2(10^x)$ for $x \geq 0$

22. The number of times that a cricket chirps per minute can be found by using the function $N(F) = 4F - 160$, where F is the temperature in degrees Fahrenheit.

A) Find and Interpret the inverse of $N(F)$.	B) What is the temperature when the cricket is chirping 60 times a minute?	C) How many times will the cricket chirp in 1 minute at a temperature of 80°F?

Write the rule for the inverse of each function. Then state the state its domain and range.

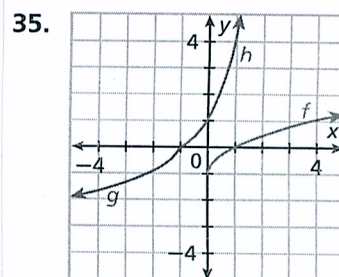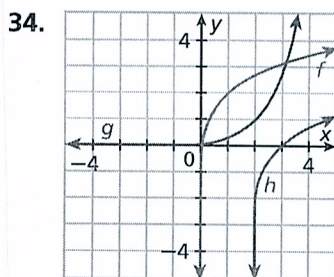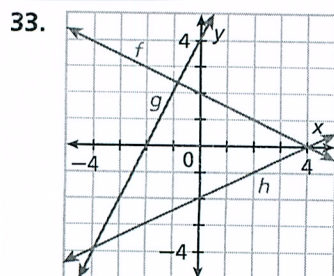| 26. $f(x) = 5(x+6)^2$	27. $f(x) = \sqrt[3]{x} - 12$	28. $f(x) = \dfrac{x^3 - 5}{12}$
$f^{-1}(x) =$ _____ $D:$ _____ $R:$ _____	$f^{-1}(x) =$ _____ $D:$ _____ $R:$ _____	$f^{-1}(x) =$ _____ $D:$ _____ $R:$ _____

For each graph, highlight the two functions that are inverses.

33.	34.	35.

39. A brown bear with a radio collar walks along a river, the distance from the bear to an observation post after t seconds is given by the function $d(t) = \sqrt{1600 + 9t^2}$.

A) Find and Interpret the inverse of $d(t)$.	B) If the tracking equipment has a range of 5500 feet, how long will a person in the observation post be able to track the bear before having to move?

Use the horizontal line test to determine whether the inverse of each relation is a function.

9.	10.	11.