Algebra 2 Honors   Name_____

Notes: 6.6   Date_____Block_____

*Functions *f* and *g* are inverses of each other if _____ .

*Notation: The inverse of *f(x)* is written _____ . **This is read as** _____ .

Examples

(1) Verify that $f(x) = 3x + 6$ and $f^{-1}(x) = \dfrac{1}{3}x - 2$ are inverses.

(2) Verify that $f(x) = \sqrt{5x - 2}$ and $f^{-1}(x) = \dfrac{x^2 + 2}{5}, x \geq 0$ are inverses.

To find the inverse of a relation or function, _____ . **Then solve for *y*.**

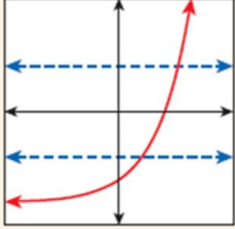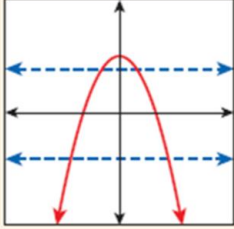**Examples. Find the inverse of each function.**

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

(4) $f(x) = \dfrac{3x - 2}{5}$

(5) Use a graphing calculator to graph $f(x) = -\dfrac{1}{2}x - 5$. Then write the inverse and graph the inverse on the same coordinate plane.

*Note: The graph of *f*$^{-1}$(x) is _____ .

Horizontal-line Test

WORDS	EXAMPLES	
If any horizontal line passes through more than one point on the graph of a relation, the inverse relation is not a function.	Inverse is a function.	Inverse is not a function.

Examples. Find the inverse of each function. Determine whether the inverse is a function. State its domain and range.

(6) $f(x) = x^2 - 2$

(7) $f(x) = (x+3)^2, x \geq -3$

Application

p. 454 #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?