Algebra 1

Chapter 5
Section 5-5

Vocabulary

Inverse Function	The relationship that reverses a set of ordered pairs from another function . **Still must be a function!!!

Example Using Only Ordered Pairs

Original Function:	Inverse Function:
(3, 8)	(8, 3)
(7, 12)	(12, 7)
(15, -3)	(-3, 15)
(-31, -200)	(-200, -31)
(0, 4)	(4, 0)
(9, 9)	(9, 9)

An Inverse Function switches the places of x and y.

Finding an Inverse Function

$f(x) = x - 4$	Write equation in function notation.
$y = x - 4$	Replace f(x) with y.
$x = y - 4$	Switch x and y places.
$x + 4 = y$	Solve for y.
$f^{-1}(x) = x + 4$	Replace y with $f^{-1}(x)$ *** $f^{-1}(x)$ means the inverse of f(x)*

Solve for y: add 4 to both sides

Finding an Inverse Function

$f(x) = \frac{1}{3}x - 10$	Write equation in function notation.
$y = \frac{1}{3}x - 10$	Replace f(x) with y.
$x = \frac{1}{3}y - 10$	Switch x and y places.
$x + 10 = \frac{1}{3}y$ $3(x + 10) = y$	Solve for y.
$f^{-1}(x) = 3x + 30$	Replace y with $f^{-1}(x)$ *** $f^{-1}(x)$ means the inverse of f(x)*

Solve for y: add 10 to both sides, then multiply both sides by 3.

Finding an Inverse Function

$f(x) = 7x + 12$	Write equation in function notation.
$y = 7x + 12$	Replace f(x) with y.
$x = 7y + 12$	Switch x and y places.
$x - 12 = 7y$	Solve for y.
$\frac{x - 12}{7} = y$	
$f^{-1}(x) = \frac{x - 12}{7}$	Replace y with $f^{-1}(x)$ *** $f^{-1}(x)$ means the inverse of f(x)*

Solve for y: subtract 12 from both sides, then divide both sides by 7.