

The slide features a light beige background with a blue grid pattern in the top-left and bottom-right corners. A dark blue rectangular area is positioned on the left side, containing the title and chapter information. A vertical red bar is located on the far left edge of the slide.

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:

$(3, 8)$

$(7, 12)$

$(15, -3)$

$(-31, -200)$

$(0, 4)$

$(9, 9)$

Inverse Function:

$(8, 3)$

$(12, 7)$

$(-3, 15)$

$(-200, -31)$

$(4, 0)$

$(9, 9)$

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

$$f(x) = 7x + 12$$

$$y = 7x + 12$$

$$x = 7y + 12$$

$$x - 12 = 7y$$

$$\frac{x - 12}{7} = y$$

$$f^{-1}(x) = \frac{x - 12}{7}$$

Write equation in function notation.

Replace $f(x)$ with y .

Switch x and y places.

Solve for y .

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.