What's Going On?

Checking In	Homework Logs
Minds on	Domain and Range of Rectangles
Action!	Inverse Functions
Consolidation	What's my inverse?

Learning Goal - I will be able to determine the inverse of a function from maps, set notation, graphs, TOVs and equations.

Checking In

Please write your quiz, then RAFT for the remainder of the first twenty minutes.

What's happening at

gilbertmath.com?

Soooo much!

Checking In

Quiz

Well... our quiz has been thwarted again!

We will write it TOMORROW during RAFT. The quiz will likely NOT take you 20 minutes. Bring a book or finish your homework for the remaining minutes of RAFT tomorrow.

Minds on

Metric Conversions

The formula for converting degrees Celsius into degrees Fahrenheit is:

$$F = \frac{9}{5}C + 32$$

Describe, in words, the operations applied to the temperature in degrees Celsisus, ***C***, to determine the temperature in degrees Fahrenheit, ***F***.

Minds on

Metric Conversions

The formula for converting degrees Celsius into degrees Fahrenheit is:

$$F = \frac{9}{5}C + 32$$

To convert degrees Celsius, ***C***, into degrees Fahrenheit, ***F***, perform the following operations on ***C***.

1. Multiply by 9.
2. Divide by 5.
3. Add 32.

If, instead, you knew the temperature in degrees Fahrenheit, what operations would you perform on ***F*** to determine ***C***?

Minds on

Metric Conversions

To convert degrees Celsius, ***C***, into degrees Fahrenheit, ***F***, perform the following operations on ***C***.

1. Multiply by 9.
2. Divide by 5.
3. Add 32.

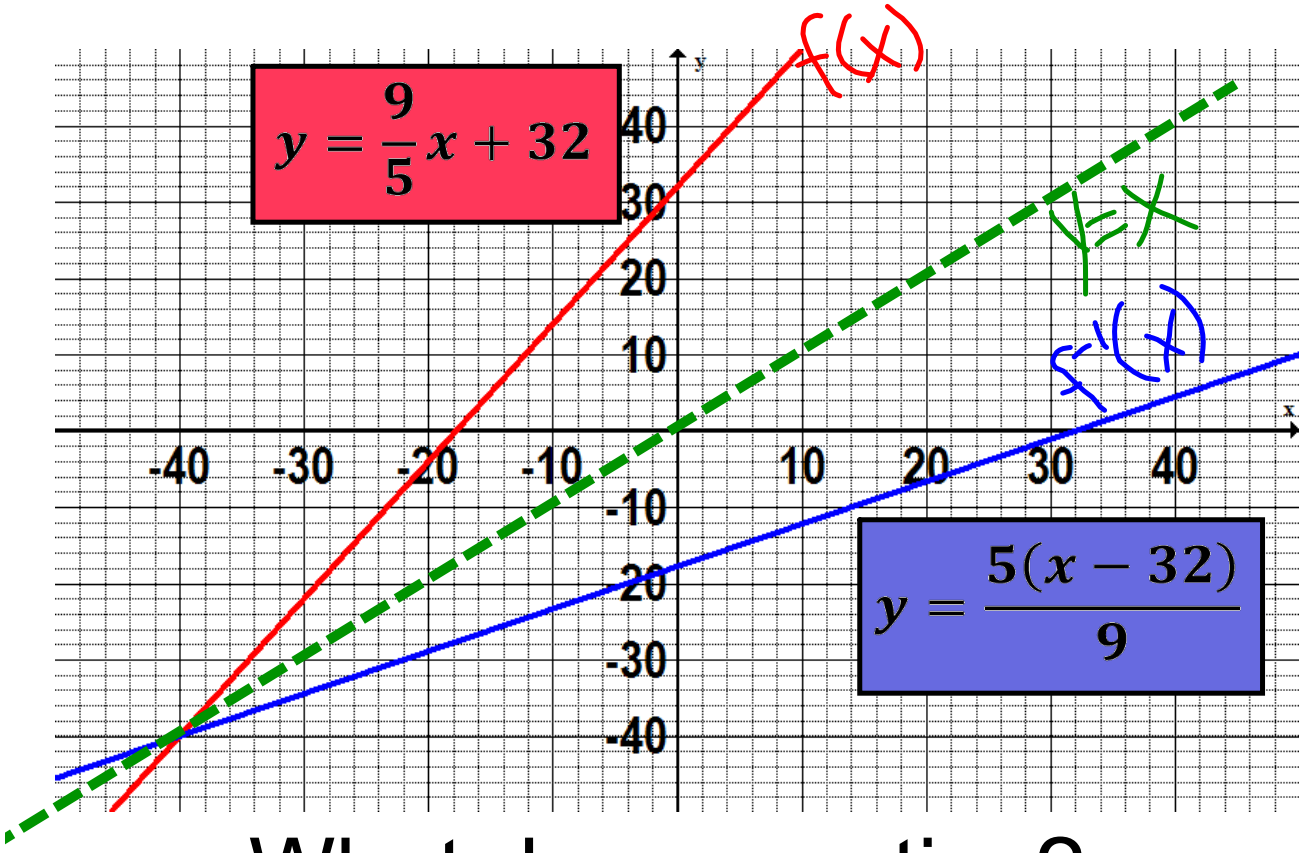
To convert degrees Fahrenheit, ***F***, into degrees Celsius, ***C***, perform the following operations on ***F***.

1. Subtract 32.
2. Multiply by 5.
3. Divide by 9.

Minds on

Metric Conversions

Now, let's graph both of these equations on the same set of axes. In each case we will use x and y as the variables and we will use y as the dependent variable both times.



What do you notice?

One is the reflection of the other across the line y = x!

Action!

Inverse Functions

The inverse of a function is the "reverse" of the original function.

For equations: Switch the two variables and solve for the previously independent variable.

For graphs: If point (a,b) is on f(x), then point (b,a) is on $f^{-1}(x)$.
[The domain of f is the range of f^{-1} and vice versa]

The graph of the inverse is the reflection of the graph of f(x) in the line y=x

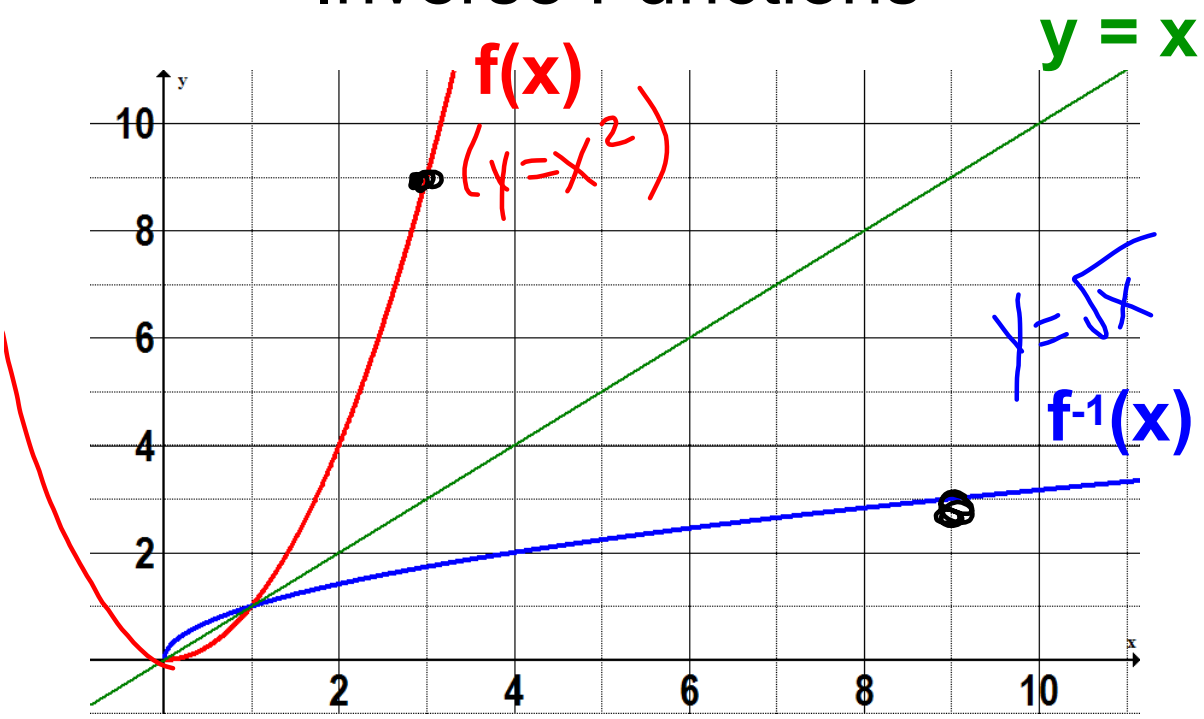
For maps: Reverse the arrows.

For TOVs: Switch the columns. (Independent becomes dependent)

The inverse of a function is not necessarily a function (i.e. parabola)

Action!

Inverse Functions



f(x)

x	y
0	0
1	1
2	4
3	9

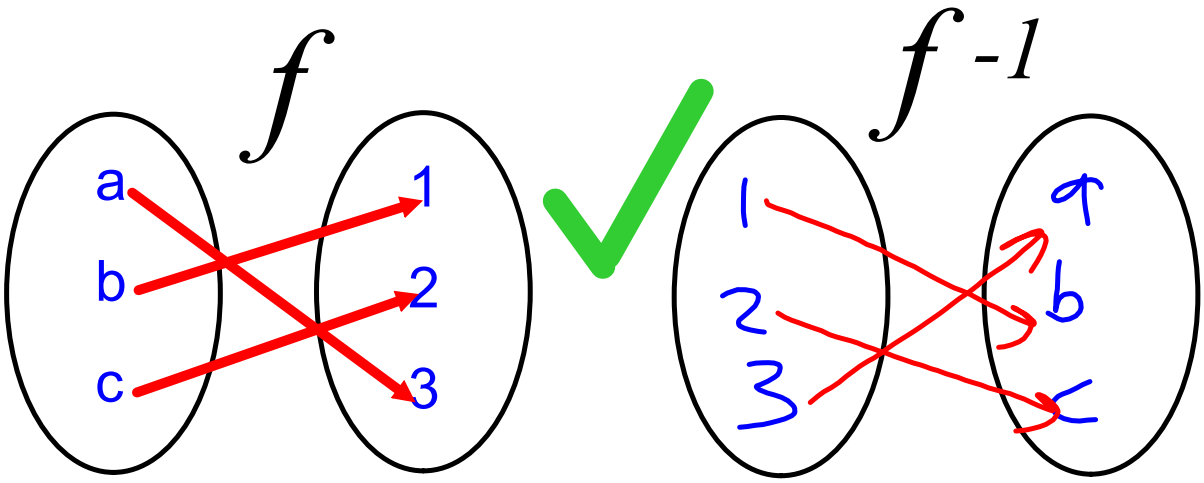
$f^{-1}(x)$

x	y
0	0
1	1
4	2
9	3

Switch the values of the dependent variable and independent variable.

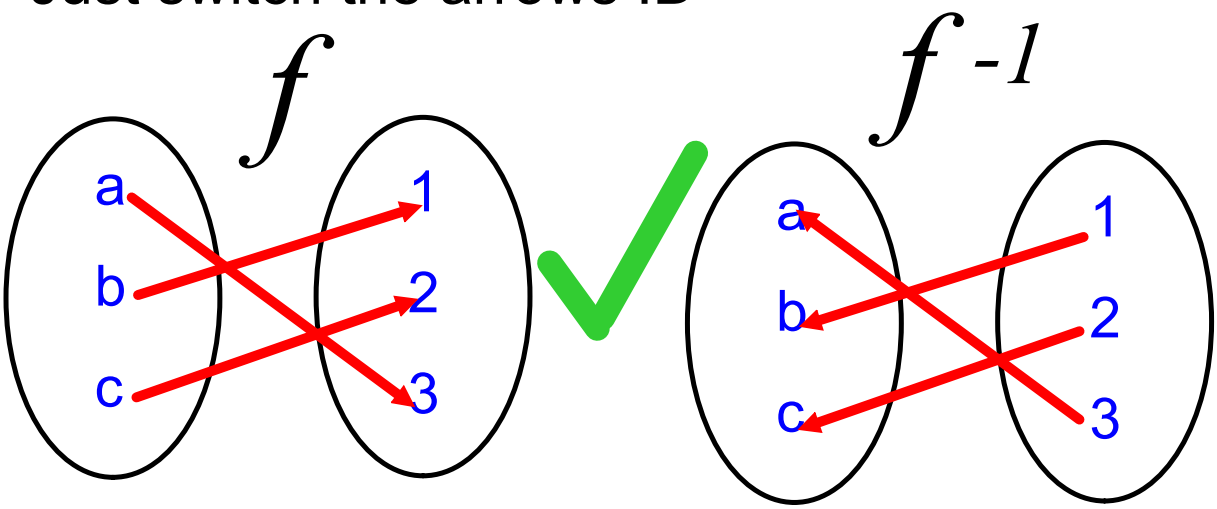
Consolidation

What's my inverse?



You don't need to switch the values from one bubble to the other.

Just switch the arrows :D



Consolidation

What's my inverse?

$$f(x) = \{(-5,0), (2,3), (6,-5)\}$$

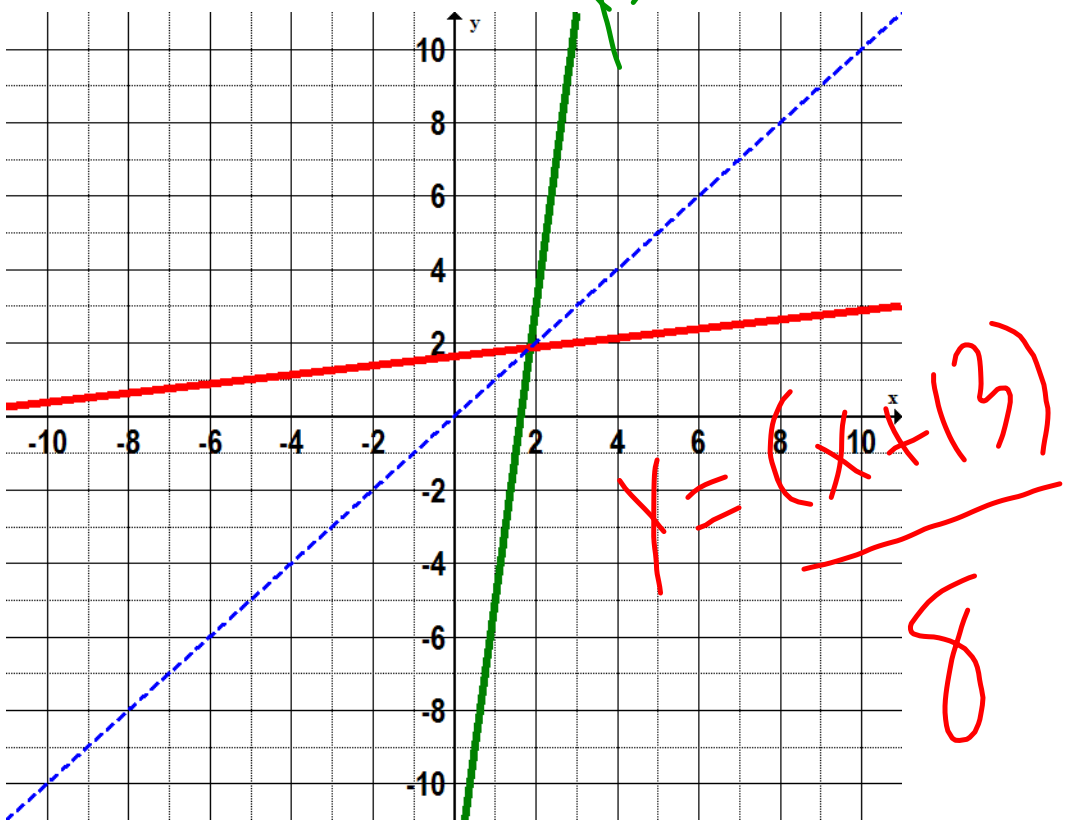
$$f^{-1}(x) = \{(0,-5), (3,2), (-5,6)\}$$

Consolidation

What's my inverse?

$f(x) = 8x - 13$

$f^{-1}(x) = \frac{x + 13}{8}$



Consolidation

What's my inverse?

$f(x) = \frac{3}{2}x - 6$ (4,0)

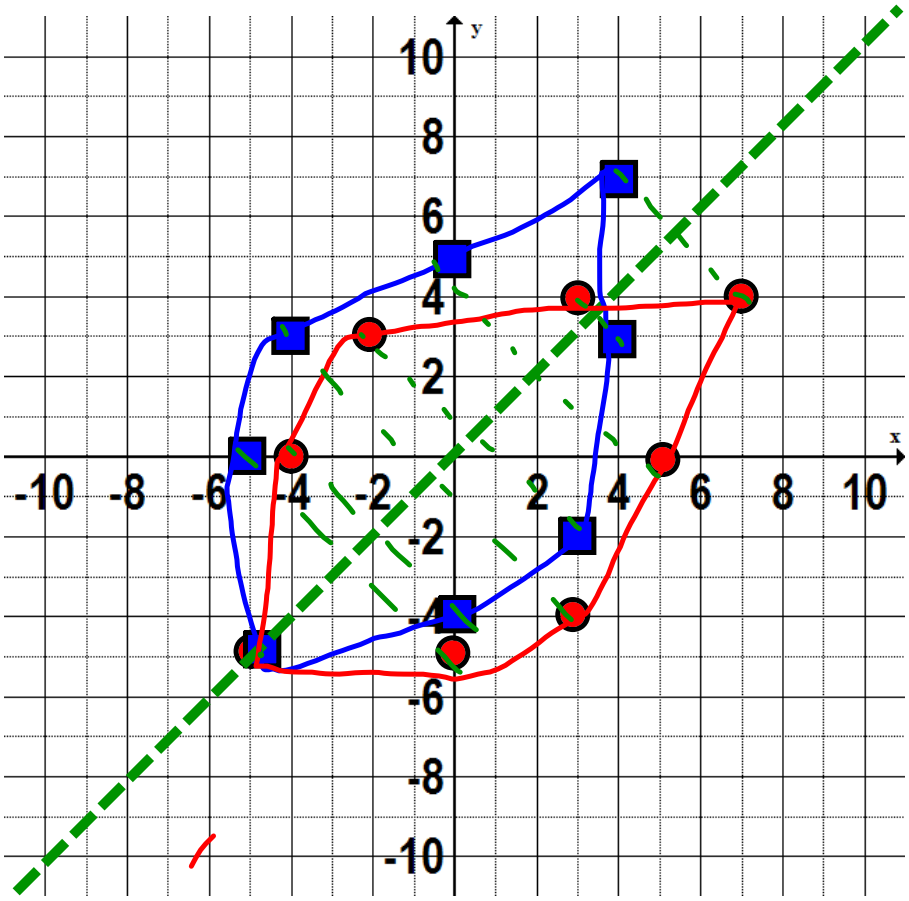
$f^{-1}(x) = \frac{2(x+6)}{3}$ (0,4)

Consolidation

What's my inverse?

f

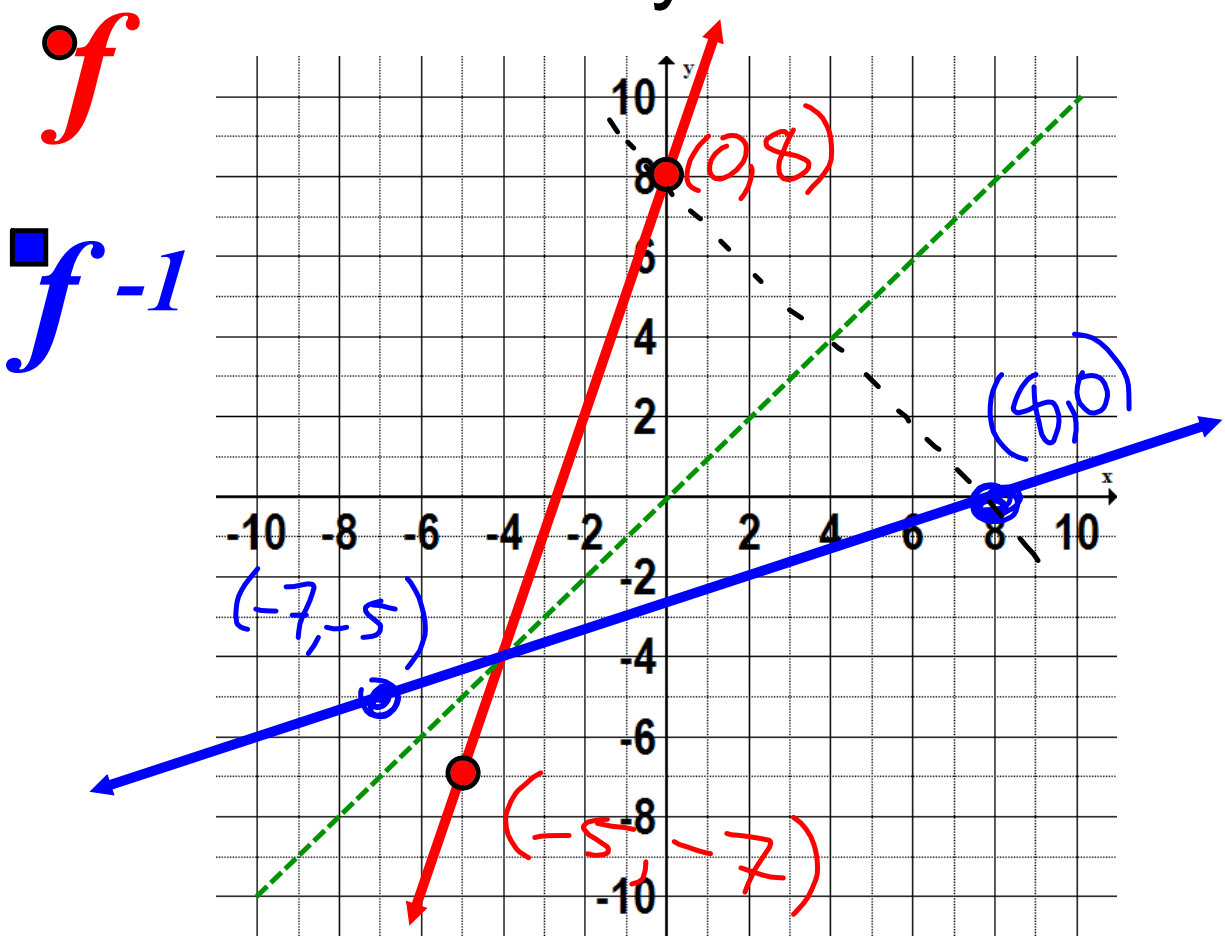
f^{-1}



Notice, if we draw lines perpendicular to the green line (y = x) we are able to "map" points from the red function to the blue function.

Consolidation

What's my inverse?



Here, I just picked a few points on ***f*** and switched the x and y coordinates. Then I drew a line through. Notice, again, that one is the reflection of the other along y = x.

Consolidation

Homework!

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