Inverse Relations (1.5)

Math Learning Target:

"I know how to find the equation and graph of an inverse relation, and I can state its properties.
Also, I know under what conditions the inverse relation is a function."

Simply stated, an **inverse** is something that is the opposite or reverse of something else. For example, the inverse of the operation addition is subtraction and vice versa. When a mathematical operation does something with terms, its inverse operation undoes it.

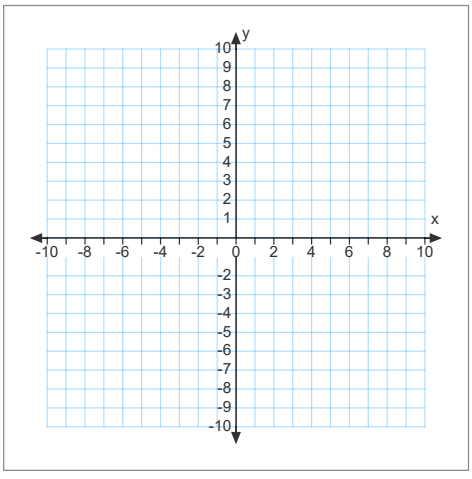
Do Undo

The idea of an inverse applies to relations too! If the relation is a function, a function accepts one input and produces one output.
The **inverse function** accepts that output (as an input) and produces one output (the original function's input!).

Do Undo

Note: not all inverse relations are functions.

Ex. 1:
a) Using a table of values, graph $y = 3x$
b) Using a table of values, graph its inverse relation.
c) State the equation of the inverse relation.



Ex. 2:

a) Determine the equation of the inverse relation of $f(x) = (x-3)^2 + 4$

b) Without graphing, is the inverse relation a function? Explain.

Ex. 3: Given: $h(x) = 2x^3$

Find: $h^{-1}(-8)$

All properties of the independent variable in a relation correspond to the properties of the dependent variable in its inverse, and vice versa.

Entertainment: Page 43 #1cd, 2d, 3, 4**, 6d, 10e, 12c, 13ab, 14, 16.

To start #4, create a table of values for $y = x^3$ then graph it.

Optional Quizzes

http://courseware.cemc.uwaterloo.ca/8/assignments/113/4

http://courseware.cemc.uwaterloo.ca/8/assignments/113/5

http://courseware.cemc.uwaterloo.ca/8/assignments/113/6

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