

1.5 Inverse Relations



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

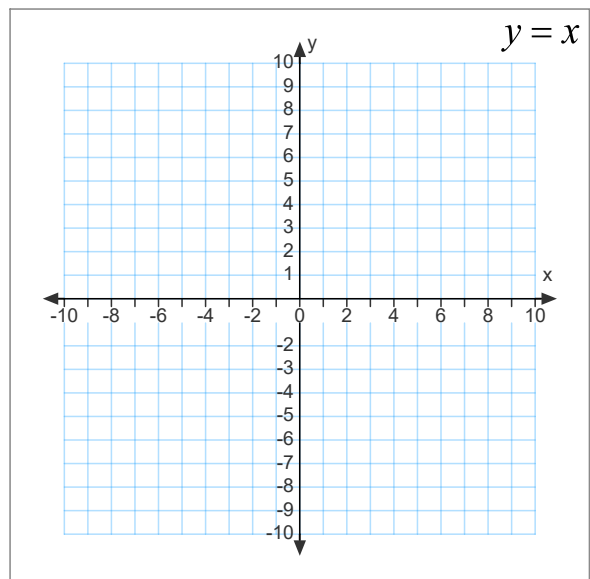


Undo

Note: not all inverse relations are functions.

Ex. 1:

- Using a table of values, graph $y = 3x$
- Using a table of values, graph its inverse relation.
- 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: pp. 43-45 #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>
-  <http://courseware.cemc.uwaterloo.ca/8/assignments/113/7>
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