

3.3 The Inverse of a Quadratic Function

Today's Learning Goal(s):

By the end of the class, I will be able to:

- determine the equation of the inverse of a quadratic function.

3.3 The Inverse of a Quadratic Function

Date: _____

Recall: The inverse of a function undoes a function.

To find the equation, switch the x and y variables and rearrange for y .

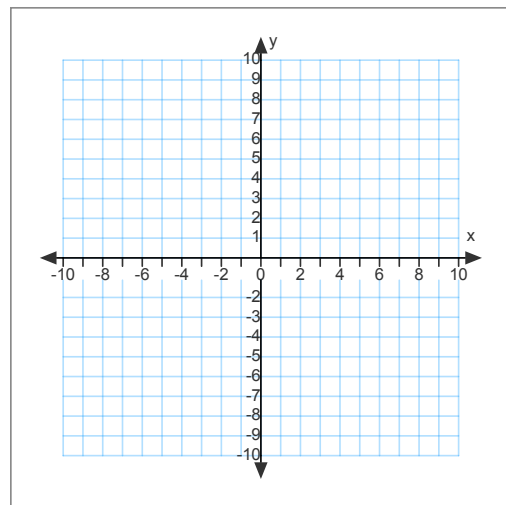
For a function with coordinates (x, y) , the inverse will have coordinates (y, x) .

Ex. 1:

a) Graph $f(x) = 2(x - 2)^2 - 4$ and its inverse.

b) Is the inverse a function?

c) Determine the equation of the inverse.



d) Determine the Domain and Range of $f(x)$ and the inverse.

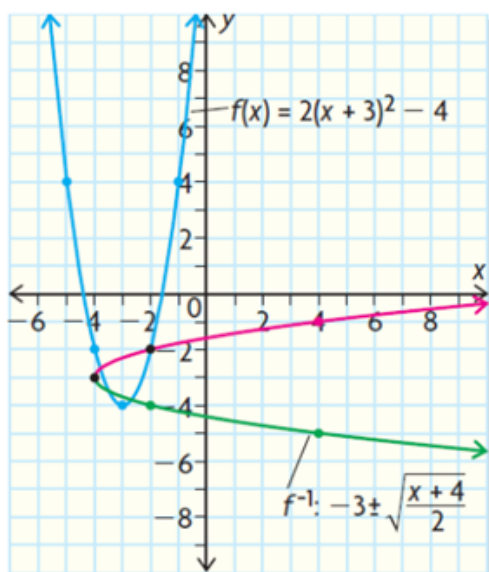
3.3 The Inverse of a Quadratic Function

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3.3 The Inverse of a Quadratic Function

Recall: The inverse of a function undoes a function. To find the equation, switch the x- and y-variables and rearrange for y. For a function with coordinates (x, y), the inverse will have coordinates (y, x).

Eg. 1) Given the quadratic function $f(x) = 2(x + 3)^2 - 4$, graph $f(x)$ and its inverse. Also determine the equation of the inverse.



$$f(x) = 2(x + 3)^2 - 4 \leftarrow$$

$$y = 2(x + 3)^2 - 4$$

$$x = 2(y + 3)^2 - 4$$

$$x + 4 = 2(y + 3)^2$$

$$\frac{x + 4}{2} = (y + 3)^2$$

$$\pm \sqrt{\frac{x + 4}{2}} = y + 3$$

$$-3 \pm \sqrt{\frac{x + 4}{2}} = y$$