

# Inverse Functions

## DEFINITION

An inverse function is a function that  
\_\_\_\_\_ the action of another  
function

NOTATION:  $f^{-1}(x)$

## STEPS

1. Rewrite the function using  $y$   
instead of  $f(x)$
2. Switch the  $x$  and  $y$  variables
3. Solve the new equation for  $y$
4. Place the  $y$  with  $f^{-1}(x)$

## UNDERSTANDING INVERSES

$$f(x) = 3x - 1$$

To solve this function you would \_\_\_\_\_ your  $x$ -value by 3, then \_\_\_\_\_ 1

To undo your solution you would have to \_\_\_\_\_ 1, then \_\_\_\_\_ by 3

## EXAMPLES

$$f(x) = -3x + 7$$

$$\underline{\quad} = -3x + 7$$

$$\underline{\quad} = -3 \underline{\quad} + 7$$

$$\underline{\quad} = -3y$$

$$\underline{\quad} = y$$

$$f^{-1}(x) = \underline{\quad}$$

$$f(x) = \frac{x}{4} - 5$$

$$\underline{\quad} = \frac{x}{4} - 5$$

$$\underline{\quad} = \frac{\underline{\quad}}{4} - 5$$

$$\underline{\quad} = \frac{y}{4}$$

$$\underline{\quad} = y$$

$$f^{-1}(x) = \underline{\quad}$$