Steps to Find the Inverse Function: \( f^{-1}(x) \)

I Verify that \( f \) is a function using the Vertical Line Test
Verify that \( f \) is a one-to-one function using the Horizontal Line Test

II Write \( f(x) \) as \( y \)
State the Domain of \( f \): \( x \)-values
State the Range of \( f \): \( y \)-values

**Interchange the \( x \)'s and \( y \)'s** (i.e. swap the \( x \)'s and \( y \)'s)
State the Domain of \( f^{-1}(x) \): \( x \)-values
State the Range of \( f^{-1}(x) \): \( y \)-values

Solve for \( y \) (i.e. \( y = \ldots \))

Now Replace \( y \) with \( f^{-1}(x) \)

III Verify that the graphs of \( y = f(x) \) and \( y = f^{-1}(x) \) are symmetric about the graph of the line \( y = x \)

IV Verify that \( f \left( f^{-1}(x) \right) = x \) and \( f^{-1} \left( f(x) \right) = x \)