1. Sketch the graph of the function \( y = \tan^{-1}(x) \). What are its domain and range?

2. Can you find a function \( y = f(x) \) which is invertible and satisfies \( f^{-1}(x) = f(x) \) for all \( x \) in the domain of \( f \)? Either give a formula for \( f \), or draw its graph.

3. Show that the function \( f(x) = \frac{x-4}{1-x} \) is invertible by finding a formula for its inverse.

4. Find a domain on which the function \( f(x) = x^2 - 2x + 1 \) is invertible, and find a formula for the inverse function. (Hint: think about the quadratic formula.)