Problem statement Suppose that f is the function defined by the formula

$$f(x) = \left(\arctan\Big(\ln\big(\sqrt{x} - 1\big)\Big)\right)^3.$$

a) What are the domain and range of f? Answers should *not* be numerical approximations, but should be written if needed in terms of traditional constants such as π and e.

b) If $y = f(x)$, write a formula for x in terms of y.