MTH 30 Homework Section 1.8

#44 $f(x) = (x-1)^2$, $x \geq 1$

domain : $[1, \infty)$
range : $[0, \infty)$

a) $y = (x-1)^2 \quad x \geq 1$

+ c) $x = (y-1)^2 \quad y \geq 1$

- solve for y:

$x = (y-1)^2$ and $y \geq 1$

$\pm\sqrt{x} = y - 1$

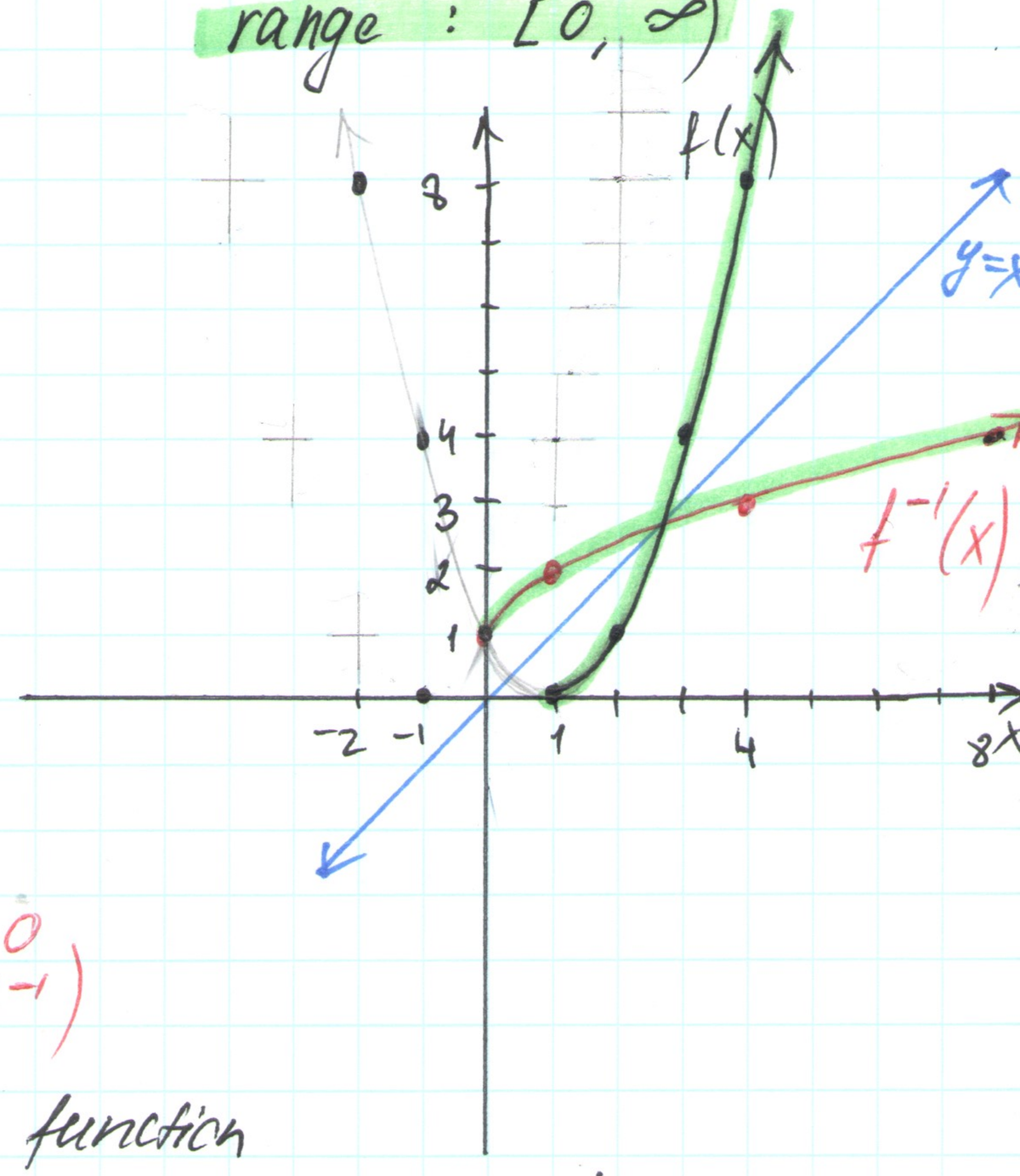
since $y \geq 1$, get rid of $-$

$y - 1 = \sqrt{x}$ note that $x \geq 0$ (domain of f^{-1})

$y = \sqrt{x} + 1$ - represents a function of x

$f^{-1}(x) = \sqrt{x} + 1$

domain : $[0, \infty)$
range : $[1, \infty)$



b)

b) $f(x) = (x-1)^2$ - parabola $f(x) = x^2$, shifted 1 unit to the right (horizontal shift) $x \geq 1$

$f^{-1}(x) = \sqrt{x} + 1$ - graph of $\sqrt{x}$ shifted 1 unit up (vertical shift) $x \geq 0$