function given by the rule $y = |\,x-1\,| - 2\,|\,x\,| + x$ to be
a) a constant function,
b) an invertible function.

Solution.
The given function is the piecewisely defined function:

$$y = \begin{cases} 1+2x & \text{if } x \in (-\infty, 0] \\ 1-2x & \text{if } x \in (0,1] \\ -1 & \text{if } x \in (1,\infty). \end{cases}$$

[1] [2]

a) A domain of restriction is $(1, \infty)$,
b) A domain of restriction is $(-\infty, 0]$ on which the function is increasing, or (0, 1] on which it is decreasing.

0.1. Operation with functions. Let

$$f\colon I \to \mathbb{R}, \quad y = f(x)$$

be a function with domain I. If $c \in \mathbb{R}$, then the function

$$cf\colon I \to \mathbb{R}, \quad y = (cf)(x) = cf(x) \tag{0.1}$$

is called a *scalar multiple* of f.

Let now be given two functions

$$f\colon I \to \mathbb{R}, \quad y = f(x)$$
$$g\colon J \to \mathbb{R}, \quad y = g(x)$$

with non disjoint domain I and J, then f+g, f-g, fg,

[1]Corrected: "0)" in the first case of the equation must be closed interval "0]"
[2]Corrected: Missing element of sign in the third case