## What is the value of x in x+1=x

I could just give you an answer in one line but I would rather EXPLAIN what is strange about equations like this.

I will solve a "normal" linear equation first.

	7(x - 3)	$5) = 5(\mathbf{x} + 5)$	Line 1
If Line 1 is true then:	7x - 2	1 = 5x + 25	Line 2
If Line 2 is true then:	7x	= 5x + 46	Line 3
If Line 3 is true then:	2x	= 46	Line 4
If Line 4 is true then:	X	= 23	Line 5

The solution x = 23 has to fit every line for every line to be true.

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NOW look at this equation:

	2(x+3) = 2(x+5)		Line 1
If Line 1 is true then:	2x +	6 = 2x + 10	Line 2
If Line 2 is true then:	2x	= 2x + 4	Line 3
If Line 3 is true then:	0	= 4	Line 4

BUT of course  $0 \neq 4$  so this logic goes backwards too!

Line 4 is false So Line 3 is false So Line 2 is false So Line 1 is false which means the original equation does not have any solution.

Now we can make some sense out of your equation.

 $\begin{array}{l} \text{If } \mathbf{x} + \mathbf{1} = \mathbf{x} \text{ is true} \\ \text{then (subtracting } \mathbf{x} \text{ from both sides)} & \mathbf{1} = \mathbf{0} \text{ which is not true} \\ \text{and this means the original equation cannot be true either. There is no solution.} \end{array}$