Anton buys a piglet

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To determine if a sequence of operations exists: if x is not divisible by 2^k, then the answer is -1, as there is no such sequence. Otherwise, it is always possible to create such a number. At a minimum, this can be done in $\frac{x}{2^k}$ operations each time using the second button.

To find the sequence of these operations, a greedy algorithm can be used. Let's say we have already used the first button q times and x has n bits. Then, to determine whether we need to add 2^k first or continue using the first button, we need to check the $n - q$-th bit of the number x. If it is equal to 1, then before the operation, 2^k needs to be added. These actions need to be repeated until we get the number x.