Problem 9. «2021-bit key»

A pseudo-random generator produces sequences of bits (that is of 0 and 1) step by step. To start the generator, one needs to pay 1 *nsucoin* and the generator produces a random bit (that is a sequence of length 1). Then, given a generated sequence S of length ℓ, $\ell \geqslant 1$, one of the following operations can be applied on each step:

1. A random sequence of 4 bits is added to S, so a new sequence S' has length $\ell + 4$. The charge for using this operation is 2 *nsucoins*.

2. A random sequence of 2ℓ bits is added to S, so a new sequence S' has length 3ℓ. The charge for using this operation is 5 *nsucoins*.

Bob needs to generate a secret key of length exactly 2021 bits for his new cipher. What is the minimal number of *nsucoins* that he has to pay for the key?