

## Multiplying like rabbits

Suppose a newly-born pair of rabbits (one male and one female) are put in a field. Rabbits are able to mate at the age of one month so that at the end of its second month a female can produce another pairs of rabbits. suppose our rabbits never die and that a female always produces one new pair (one male and one female) every month from the second month on.

How many pairs will there be in one year?

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## Fibonacci had a brother named lucas

The Lucas numbers  $L_0, L_1, L_2, \dots$  are a sequence that satisfy the same recursion relation as the Fibonacci numbers, namely

$$L_{n+2} = L_n + L_{n+1} \text{ for } n \geq 0$$

but different initial conditions :

$$L_0 = 2$$

$$L_1 = 1$$

Compute the first 10 Lucas