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**Question 1:**

* The main idea of the algorithm to solve this question: divide-and-conquer by computing and storing it.
* When we compute we mainly have 3 cases:
  + If we return 1
  + If is an even number: (count as one multiplication)
  + If is an odd number: (count as one multiplication)
* The algorithm is called (recursively) as many times as the original is divisible by 2. Each time we calling the algorithm, we compute one multiplication. Let define is the number of times we call the algorithm. So that we have:
* There for, . Hence the greatest number of multiplications we have is: