

I am a polar bear. But I am not just an ordinary polar bear. Yes I am extra ordinary! I love to play with numbers. One day my very good friend Mr. Panda came to me, and challenged me to solve a puzzle. He blindfolded me, and said that I have n distinct numbers. What I can ask is whether a -th number is larger than b -th number and he will answer me properly. What I have to do is to find out the largest and second largest number. I thought for a while and said “Come on, I will do it in minimum number of comparison.”

Input

There will be a non-negative integer, n in each of the line of input where n is as described above. n will be less than any 10 digit prime number and not less than the smallest prime.

Output

For each n , output number of questions that I have to ask Mr. Panda in the worst case.

Sample Input

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2
4
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Sample Output

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1
4
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