

ASIA SANSU OLYMPICS 2023

KIDS BEE

[Question 8] “30 integers”

The numbers from 1 to 30 are arranged in ascending order. The sequence of the numbers is rearranged according to the following rules.

Rule 1: Place the sum of the first two numbers at the end of the sequence.

Rule 2: Remove the first 2 numbers.

When the two rules are applied, it counts as one round.

1, 2, 3, 4, , 30

After finishing the 1st round, the result is

3, 4, 5, 6, , 30, 3

After finishing the 2nd round, the result is

5, 6, 7, 8, , 30, 3, 7

After finishing the 3rd round, the result is

7, 8, 9, 10, , 30, 3, 7, 11

Rearrange the sequence using the same rules until there is only one number remaining. Answer the questions below.

(1) How many rounds must be done until there is only one number remaining?

(2) What is the last number remaining?