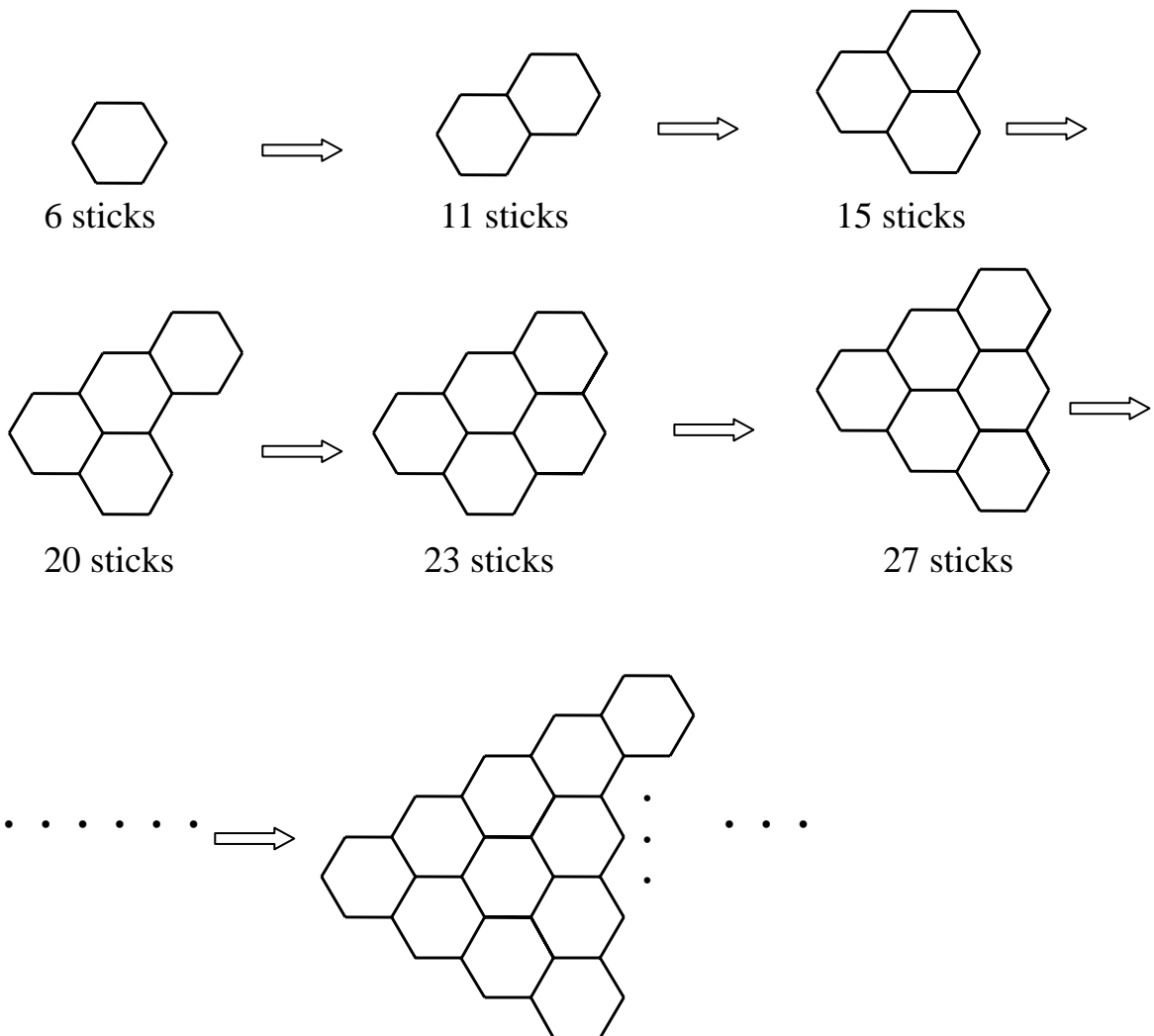


**INTERNATIONAL MATHEMATICS AND SCIENCE OLYMPIAD
FOR PRIMARY SCHOOLS (IMSO) 2005**
Mathematics Contest in Taiwan, Exploration Problems

Name: _____ School: _____ Grade: _____ ID number: _____

Answer the following 5 questions, and show your detailed solution in the answer sheet. Write down the question number in each paper. Each question is worth 8 points. Time limit: 60 minutes.

1. A pattern of hexagons is made from sticks, as shown below.



If there are 200 sticks used, how many hexagons have been formed?

2. If you have \$1, \$2, \$5, \$10 coins, in how many ways can you make up \$50?

3. Locate digits from 1 to 7 into each row and each column of the grid once.
Numbers on the circles tell the product of the four digits around them.

Example:

1	2	3	4
4	1	2	3
2	3	4	1
3	4	1	2

Example grid with product circles:

		72	
24			
		8	

			168		24
		120			
192		60		105	
			120		
36					
	20		84		

4. The Fibonacci numbers are

$$F_1=1, F_2=1, F_3=2, F_4=3, F_5=5, F_6=8, F_7=13, \dots$$

where the first two are both equal to 1, and from then on, each one is the sum of the two preceding it. What is the last digit of the sum of the first 2005 Fibonacci numbers?

5. Four darts are thrown at the dartboard illustrated on the right. The four scores are added together, a miss counted as zero. What is the smallest positive total score which is impossible to obtain?

