



NMCC – Nordic Final 2023

Task 1

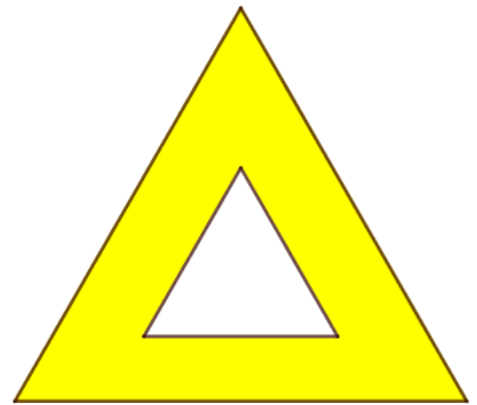
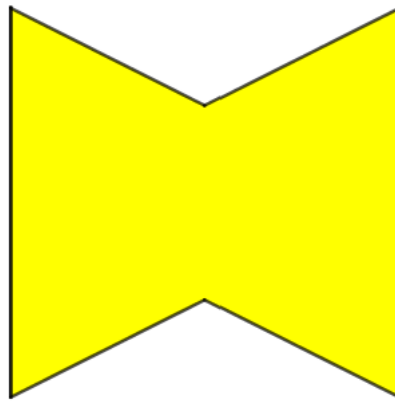
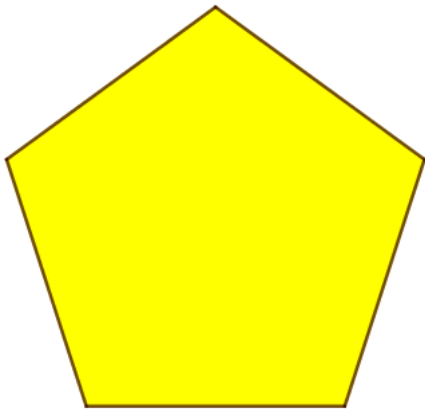
Country: _____

Cut shapes into triangles

Equipment

- Three shapes
- A scissor
- Worksheets

The figures must be cut into triangles with as few cuts as possible.



Leave the solution on the table.



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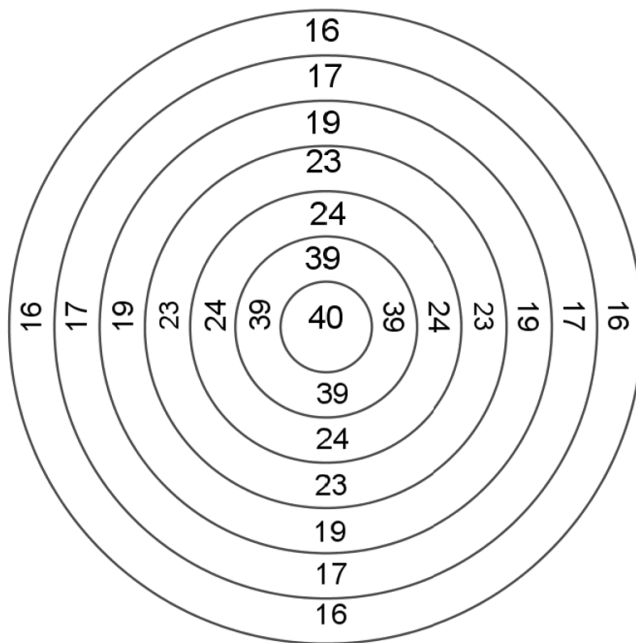
Task 2

Country: _____

Get 100 points

Equipment

- Target disc
- Four types of pieces



Place pieces of the same type so that the value of the pieces adds up to 100.

Can it be done in more than one way?

Answer

100 =
100 =
100 =
100 =



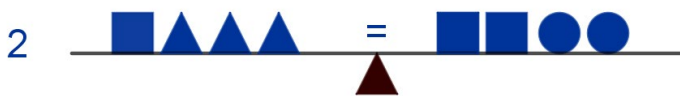
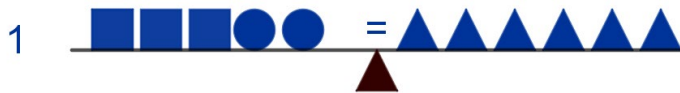
Task 3

Country: _____

The Balancing Act

Equipment

- squares, triangles and circles



Line 1 and 2 show how we can make a balance in two different ways.

Is it possible to make a balance with

- a) only squares at one side and only circles on the other side
- b) only squares at one side and only triangles on the other side

Use as few blocks in your answer as possible.

Answer

Argue for your solution:

a)

b)



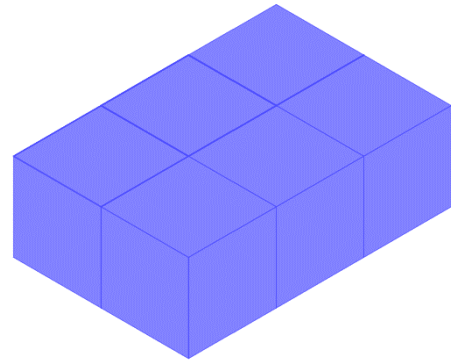
Task 4

Country: _____

Prisms

Equipment

- 50 Multilink blocs



The figure shows a rectangular prism.

The ratio between the side edges is 1 : 2 : 3.

- Use the blocks and make a rectangular prism where the ratio between the side edges is 1 : 2 : 3. The prism should be as large as possible.
- How many different prisms is it possible to make with 72 blocks – regardless of the relationship between the length of the side edges.

Answer

- Leave the answer at the table.
- a , b and c are the length of the side edges.

	a	b	c
1			
2			
3			
4			
5			
6			
7			
8			

	a	b	c
9			
10			
11			
12			
13			
14			
15			
16			



Task 5

Country _____

How many Zeros?

For an integer x greater than 0, $x!$ equals the product of all integers from and including 1 up to and including the integer x itself.

Example:

$7! = 1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 = 5040$. Note that the number 5040 ends with one zero.

- a) How many zeros will there be at the end of the number that equals $100!$
- b) Determine the smallest number x where $x!$ ends with 100 zeros

Give a reason for your answer.

Answer

a)

b)



Extra task

Country: _____

One Nordic in many ways

Nordic is the currency unit in the country of Nordia.

There are 100 cent in one Nordic.

Kasper and June count their coins:

Cent-coins	1	2	5	10	20	50
Quantity	1	5	4	3	2	1

In how many different ways is it possible to combine coins by adding up to exactly 1 Nordic?

(When you have found one way, you put the coins back so you can use all the coins every time)

Answer

Cent-coins	1	2	5	10	20	50
Quantity	1	5	4	3	2	1
Solutions						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						