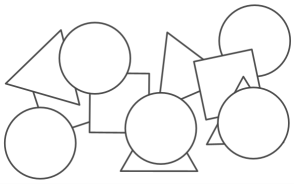
FFJM – FINAL- 30 MAY 2026

Information and results at http://www.fsjm.ch/

START for ALL PARTICIPANTS

1. Stickers (coefficient 1)



I have stickers of three different shapes.
But how many of each?

2. Tokens (coefficient 2)

Matthew found seven tokens in his attic. He removes four tokens whose total is 26.
What are the three tokens that remain?

3. Cecily's Cards (coefficient 3)

Cecily has three cards bearing the numbers 3, 6, and 9.

The 6 card could be rotated to form the number 399. Or, by rotating the 9 card, we could read 366.
Considering the examples, how many different numbers could be formed by placing these three cards side by side?

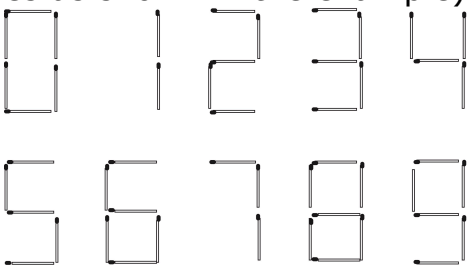
4. Horseshoe (coefficient 4)

Mrs. Bonifer wants to hang up a lucky U-shaped horseshoe (see figure).

The horseshoe has 8 holes, but Mrs. Bonifer only has 2 nails, which she will put in 2 of the holes.
In how many different ways can she hang up her horseshoe?
Two ways are considered as the same if the same holes are used.

5. Light Year (coefficient 5)

To write the year 2026, 22 matches are used (the numbers are formed with the matches as shown in the example).



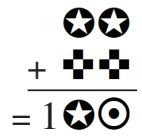
To be able to write any year between 2000 and 2100 inclusive, what is the minimum number of matches needed?

END for CE PARTICIPANTS

6. Matilda's Pictures (coefficient 6)

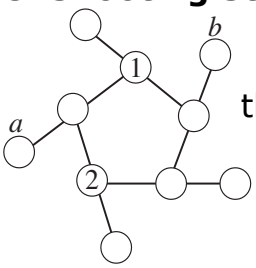
Matilda has a set of pictures she wants to glue into her notebook.
She starts by gluing in half the set at one picture per day. Then, to go faster, she glues in the rest at three pictures per day. It took her 16 days in total to glue all the pictures.
How many pictures did she have?

7. Odd Addition (coefficient 7)



In this addition, ✪ ✣ and ⊙ represent 3 different digits.
Write the number ✣ ✣ using the correct digits.

8. Shooting Star (coefficient 8)



Place the numbers 3, 4, 5, 6, 7, 8, 9, and 10 in the empty discs. The sum of the three numbers in the same line must always equal 14.

Which numbers go in discs a and b?

END for CM PARTICIPANTS

Problems 9 to 18: beware! For a problem to be completely solved, you must give both the number of solutions, and give the solution if there is only one, or give any two correct solutions if there are more than one. For all problems that may have more than one solution, there is space for two answers on the answer sheet (but there may still be just one solution).

9. Only Nine Digits (coefficient 9)

$$\begin{array}{r} -3-9 \\ +\ \ --- \\ +\ \ \underline{\ \ -0} \\ =2026 \end{array}$$

In the three component numbers of this addition, Matilda used nine different digits, but Matthew erased six of them (1, 2, 4, 5, 6, and 7).

What was the second number in this addition?

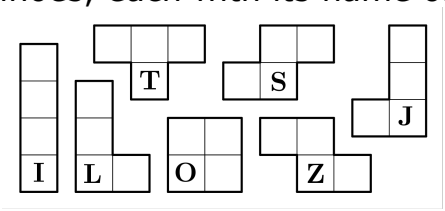
10. Chocolate Package (coefficient 10)

Twins Marion and Roman received a rather unusual package of chocolates. It contained eight small bags, numbered from 1 to 8, such that bag number 1 contained one chocolate, bag number 2 contained two chocolates, bag number 3 contained three chocolates, and so on up to bag number 8. The two children want to share the unopened bags so that each child has the same number of chocolates and the same number of bags. Marion would also like to have bag number 1.

What are the numbers of the bags she should take to meet these conditions?

11. Tetraminoes (coefficient 11)

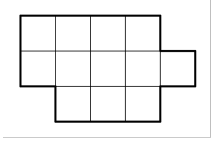
I have one example of each of the seven tetraminoes, each with its name on.



I assembled three of these tetraminoes to form the following figure. The letter T is visible on one of the 12 squares.

What are all the squares where the letter T could be found?

Mark these squares, with a cross in each.



END for C1 PARTICIPANTS

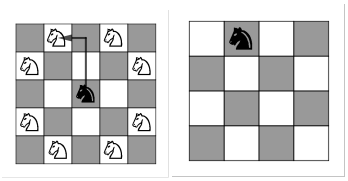
12. Year 20 x 26 (coefficient 12)

20 x 26 = 520.

Between 2027 and 9999, what year $\overline{ABCD}$ will be such that $\overline{AB} \times \overline{CD} = 20 \times 26$?

13. Knights (coefficient 13)

In chess, a knight threatens any square it can reach by taking two steps in a horizontal or vertical direction and then one step to the side.



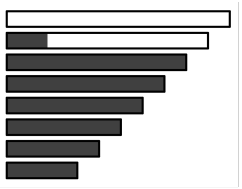
On a 4x4 chessboard, a knight is placed.

Add as many knights as possible so that none threatens any other.

Mark these squares with a cross in each.

14. Car Trip (coefficient 14)

Chloe's car's fuel gauge looks like this:



The tank holds 30 litres in total, and when it's full, all eight bars are fully lit.

Each of these bars represents a certain number of litres, either a whole number or half a whole number; the differences in the number of litres from one bar to the next are all equal.

Chloe's car consumes an average of 6 litres per 100 km.

She is 80 km from home, and her fuel gauge only shows the 3 small bars that are fully lit.

Once she gets home, how many litres will be left in her tank?

END for C2 PARTICIPANTS

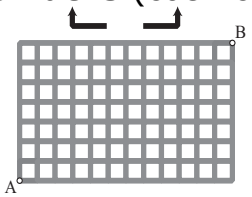
15. CCTV (coefficient 15)

Axel and Bob, two police officers, are watching the same CCTV video separately. At the same instant, Axel has 2 hours and 30 minutes left to watch, while Bob has 5 hours and 25 minutes left. They decide to watch the videos in fast-forward: Axel by increasing the speed by a factor of 1.5 and Bob by a factor of 2.5.

How long after Axel will Bob finish watching his video?

Answer in minutes and seconds.

16. Lucien's Paths (coefficient 16)



The map above is of the city of Lu-Pian. Lucien has found a large number of angled arrows of two types (right-hand or left-hand bends). Using these arrows, he wants to construct a continuous path from point A to point B such that:

• the starting point of the first arrow is at A, the starting point of each subsequent arrow coincides with the tip of the previous arrow, and the tip of the last arrow is at B;

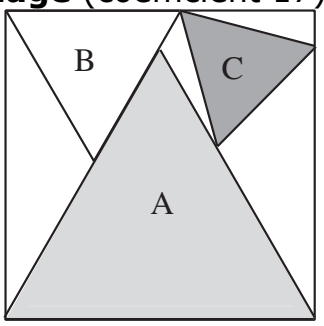
• each arrow is oriented to rest on exactly three small segments of the grid;

• no arrow occupies the same small segment of the grid as any other arrow.

If he wants to use the fewest possible arrows, how many different paths can he construct?

END for L1, GP PARTICIPANTS

17. Collage (coefficient 17)

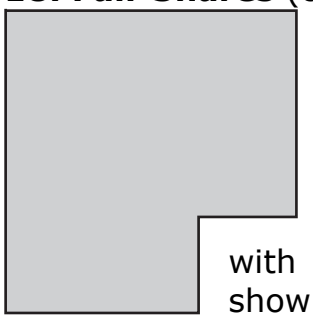


Gerard is creating a collage on a square with sides of 26 cm. He glues on an equilateral triangle A, one side of which coincides with a side of the square. He then glues on a second equilateral triangle B, sandwiched between triangle A and one side of the square. He finishes his collage with an equilateral triangle C, touching a vertex of triangle B, a side of triangle A, and a side of the square, as shown in the figure.

What is the area of triangle C?

Take √3 as 1.73205, and give the answer in cm², rounded to the nearest hundredth.

18. Fair Shares (coefficient 18)



A farmer is preparing his estate for inheritance between his two children. He wants to divide this rectangular field, with a square cut off (as shown in the figure), into two parts of equal area and perimeter, using a straight-line segment. All lengths are whole numbers of decametres, including the length of the cut segment.

Given that this is the field with the smallest possible area, what is its perimeter?

END for L2, HC PARTICIPANTS

The Swiss Federation of Mathematical Games warmly thanks its sponsors for their help in organizing this event