Greet the Spring Mathematics Cup **2023**
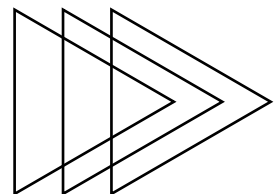
Middle Primary Final Paper

Exam Time: 26/02/2023 15:00-16:30

Your Full Name: _____

2023 School Year: _____

School Name: _____

Country: _____

I. Fill in the blanks I (8 marks per question, 32 marks in total)
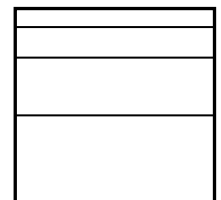
1. $12 \div 3 + 45 \times 6 - 78 =$ _____.

2. In the diagram on the right, there are _____ triangles.

3. The 2022 Qatar World Cup is the 22nd FIFA World Cup football tournament; it is known that the World Cup is held every four years, and there are two years when it should have been held were not due to war. The first World Cup held in Uruguay was in _____ AD.

4. As shown in the diagram, a large square is divided into four smaller rectangles with perimeters of 70, 80, 90 and 100 in an order; then the area of the smallest of these smaller rectangles is _____.

II. Fill in the blanks II (10 marks per question, 40 marks in total)

5. A worker has transported 1,000 pieces of porcelain. It is known that transporting a complete piece to the destination would earn $5, but damage to one piece would compensate for $120. After the shipment of porcelain, the worker received a total of $4,500. He has damaged _____ pieces of porcelain.
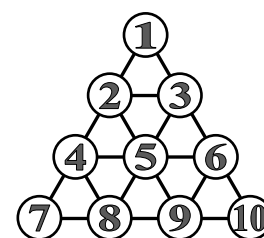
6. Fill 1 to 9 into the boxes on the right, using each number once so that the vertical equation holds; now that the numbers 6, 7 and 8 have been filled in, the sum of the vertical equation is _____.

$$
\begin{array}{cccc}
 & \square & \square & 6 \\
+ & \square & 7 & \square \\
\hline
 & 8 & \square & \square \\
\end{array}
$$

7. There are three tigers, three foxes and three monkeys, with each animal staying in each room shown on the right (rooms are numbered from 1-9). It is found that each animal says **there is a tiger in their adjacent room** (two rooms share a common side are adjacent). If the tigers all tell the truth, the foxes all tell lies and the monkeys say things that are not known to be true, then the sum of the room numbers of the monkeys that tell the truth is _____.
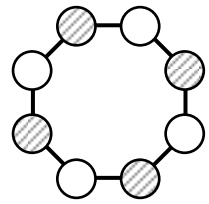
$$
\begin{array}{|c|c|c|}
\hline
1 & 2 & 3 \\
\hline
4 & 5 & 6 \\
\hline
7 & 8 & 9 \\
\hline
\end{array}
$$

8. As shown in the diagram, nine small triangles are put together to form a large triangle, and the ten small circles are filled with 1 to 10 respectively.
For each operation, when the numbers on the three vertices of a small triangle are all positive integers, it can **add 1 or subtract 1** to all three numbers at the same time. When the numbers in the nine small circles on the sides of the large triangle all become 0, the number in the central small circle would become _____.

III. Fill in the blanks III (12 marks per question, 48 marks in total)

9. As shown on the right, fill in two of each of the eight circles with 1, 2, 3 and 4 so that the number in the shaded circle is greater than the number in the adjacent white circles on either side of it; then there is a total of _____ different ways to fill in the circles.
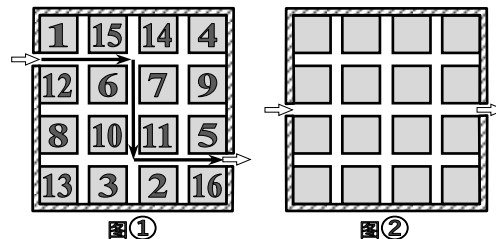

10. There are some red marbles and white marbles in a box; if taking out one red marble and one white marble at a time, there will be 30 white marbles left when the red marbles are finished; if taking out one red marble and three white marbles at a time, there will be 30 red marbles left when there are two white marbles in the box, not enough to take one more time. There are _____ white marbles in the box.

11. In the maze shown on the right, it can only pass between two numbers whose sum is an odd number, and the reward points you get after passing through is the sum of these two numbers. Each path can be passed at most once.

    As shown in figure ①, the reward pointed is obtained as
    $(1 + 12) + (15 + 6) + (6 + 7) + (10 + 11) + (11 + 2) + (5 + 16)$.

    Fill in the 16 natural numbers from 1 to 16 in the small square in figure ②, using each number once; then the maximum reward points obtained is _____.

12. In your opinion, Question _____ is the best in the paper. (Select from Q1 – Q11)

    In your opinion, the difficulty of this paper is rated as _____. (The easiest being "1" and the hardest being "9", select from 1 – 9)

    In your opinion, the most difficult question is Question _____. (Select from Q1-Q11)

    All responses within the answer section will be awarded marks and all responses will be considered as valid for your own assessment of this paper; no marks will be awarded for non-responses or for responses outside the answer section...