

**THAILAND INTERNATIONAL
MATHEMATICAL OLYMPIAD FINAL ROUND
2023 – 2024**

PRIMARY 2

Open-Ended Questions (1st ~30th) (5 points for correct answer, no penalty point for wrong answer)

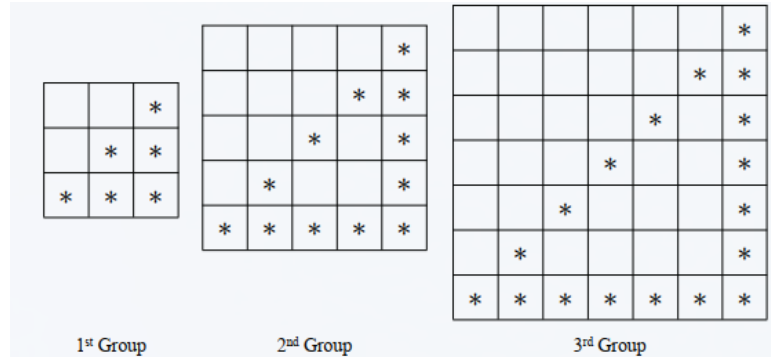
Logical Thinking

1 Given that 9th January, 2024 is Tuesday, which day of the week is 18th September, 2024?

2. Chris is 21 years old now and Andy will be 33 years old 5 years later. What is the difference between their ages this year?

3. According to the pattern shown below, what should be the English letter filled in the space provided?

4. According to the pattern shown below, how many * is / are there in the 10th group?



5. Edward is playing “Clapping Game”. He counts backward from 50 and when he counts a number with digits 2, 5 or 8, he claps his hands once. What will the next number be counted right after he has clapped 21 times?



6. Amy, Liam and other children are standing in a column such that Liam is standing behind Amy. If there are 11 children standing in front of Amy, 9 children standing behind Liam, and 5 children standing between them, how many children are there in the column?

Arithmetic

7. Which number should be filled in the box below if the equation below is correct?

$$21 \times \boxed{} = 126$$

8. Find the value of $22 \div 4 + 31 \div 4 + 18 \div 4 - 14 \div 4 - 13 \div 4$.

9. Find the value of $17 + 45 + 24 + 43 + 32 + 56 + 78$.

10. If A and B are both 1-digit numbers, what is the value of $B - A$ if the equation below is correct?



$$\begin{array}{r}
 2A \\
 + AB \\
 \hline
 83
 \end{array}$$

11. Find the value of $4 \times 15 + 12 \times 4 + 32 \times 3$.

12. Find the value of $8 - 15 + 22 - 29 + 36 - 43 + 50 - 43 + 36 - 29 + 22$.

Number Theory

13. If A , B and C are all 1-digit numbers, determine whether C is an odd or even.

	A	B
+	B	A
1	C	3

According to the pattern shown below, what should be the number filled in the blank?

3, 20, 37, 54, 71, 88, ____, ...



14. The numbers below form an arithmetic sequence, what is the 11th term in the sequence?

321, 308, 295, 282, 269, ...

15. 17 students took part in a mathematics test in which their total score is an even. Given that 9 of the students have an odd number of scores and 7 of the students have even number of scores. Determine whether the remaining student has an odd or even number of scores.

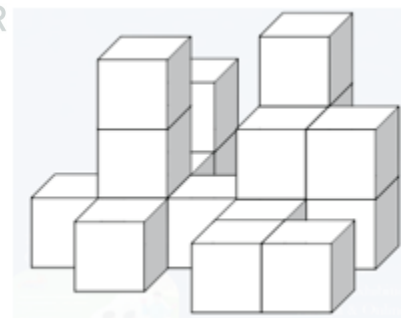
16. Fill in the blanks with ‘ + ’ and ‘ - ’ to make the equation below correct. (Write down the complete equation on the answer sheet)

$$17 \quad \underline{\quad} \quad 5 \quad \underline{\quad} \quad 8 \quad \underline{\quad} \quad 11 = 15$$

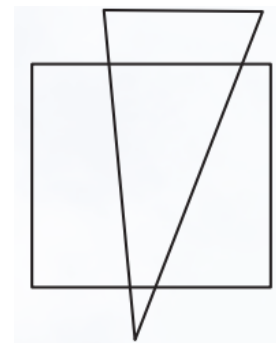
17. Given that A is an odd number, determine the result of $A \times (A + 13 + 3A - 5)$ is an odd or even number.

Geometry

18. Cubes of the same size and shape are stacked together as shown in the figure below. At least how many square face(s) of the cubes can be seen if observing from the left?



19. A polygon with 11 sides is formed by overlapping a square and a triangle as shown in the figure below. At most how many side(s) does a polygon formed by overlapping a square and 2 triangles have?

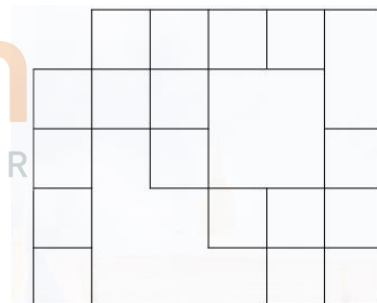
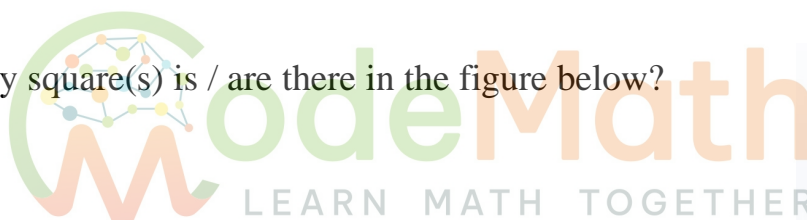


20. A pyramid has 21 faces. How many edge(s) does this pyramid have?

21.. According to the pattern shown below, what should be the figure drawn in the blank?



23 . How many square(s) is / are there in the figure below?



24. Given that the side lengths of a triangle are integers. If two of the side lengths are 9 and 11 respectively, find the largest possible value of the remaining side length of the triangle.

Combinatorics

25. Given that there are 6 different ways for Wing to walk from home to the shopping mall, and there are 4 different ways to walk from the shopping mall to the playground. How many different route(s) is / are there for Wing to walk from home to the shopping mall, and from the
26. Alice has 15 \$1 coins, 21 \$2 coins and 7 \$5 coins. Given that a book costed \$8, if she can only buy 1 book at a time and no change will be provided for each payment, at most how many book(s) can she buy



27. Liam, Yan and Yuki have several candies. If Yan gives 13 candies to Yuki and then receives 12 candies from Liam, all three of them will have an equal number of candies. How many candy(ies) did Liam have more than Yuki originally?
28. If we choose 2 different numbers from 3, 5, 2, 7 and 8 to form 2-digit numbers, of these 2-digit numbers, how many of them is / are odd numbers?

29. How many 3-digit number(s) less than 500 is / are there whose tens digit is larger than 4?

30. Among the values of the following expressions, how many 1-digit number(s) is / are there?

$$13+9 \text{ 、 } 2 \times 4 \text{ 、 } 27-13 \text{ 、 } 11+29 \text{ 、 } 45 \div 3 \text{ 、 } 15-4 \text{ 、 } 5+9$$

