BỘ TÀI LIỆU ÔN THI VÒNG LOẠI TIMO 2020

Primary 2 - Primary 3

Đề 1:

泰國國際數學競賽模擬試 2018 - 2019
THAILAND INTERNATIONAL MATHEMATICAL OLYMPIAD MOCK EXAM 2018 - 2019

Question Paper
試題

填空題（第 1 至 30 題）（每題 5 分，答錯及空題不扣分）

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

1. Given Amy has 2 sisters and 3 brothers, how many child(ren) does Amy's mother have?
已知艾美有 2 名姊妹及 3 名兄弟，問艾美的母親有多少名孩子？

2. According to the pattern shown below, what is the English alphabet in the space provided?
按以下規律，求在橫線上的英文字母。
B、E、H、K、＿、….

3. 5 years ago, Amy was 14 years old. How old will Amy be 4 years later?
五年前艾美是 14 歲，請問 4 年後她多少歲？

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4. According to the pattern shown below, what is the number in the blank?
按以下規律，求在橫線上的數字。

2 、 9 、 16 、 23 、 30 、 37 、 __ 、….

5. According to the pattern shown below, what is the number in the blank?
按以下規律，求在橫線上的數字。

3 、 3 、 6 、 9 、 15 、 24 、 __ 、….

6. Today is 5th April, Friday. Which day of the week is 26th May?
今天是 4 月 5 日星期五，5 月 26 日是星期幾？

Mock Exam

Arithmetic
算術

7. Find the value of $2+4+6+8+10+12+14+16+18$.
求 $2+4+6+8+10+12+14+16+18$ 的值。

8. Find the value of $15\times13+15\times3-15\times6$.
求 $15\times13+15\times3-15\times6$ 的值。

9. Find the value of $1-3+5-7+9-11+13-15+17$.
求 $1-3+5-7+9-11+13-15+17$ 的值。

10. What is the number that should be filled in the blank if the equation below is correct?
在以下算式填上甚麼數字會使算式正確？

$113\times$ _____ $=904$

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11. Find the value of $20 \div 4 + 20 \div 5 + 20 \div 1$.
求 $20 \div 4 + 20 \div 5 + 20 \div 1$ 的值。

12. Find the value of $1+2+3+...+7+8+7+...+3+2+1$.
求 $1+2+3+...+7+8+7+...+3+2+1$ 的值。

Number Theory
數論

13. Amy has 137 apples and John has 37 apples. How many apple(s) does Amy have to give John to make them have the same number of apples?
艾美有 137 個蘋果，約翰有 37 個蘋果。要使兩人有相同數量的蘋果，艾美要給約翰多少個蘋果？

14. 4 students have 40 balloons in total and each of them has a different number of balloons and at least 1 balloon. At most how many balloon(s) does the student with the most balloons have?
4 個小孩一共有 40 個氣球。已知當中沒有任何小孩有相同數量的氣球，而每人至少有 1 個，問擁有最多氣球的小孩最多擁有多少個氣球？

15. The numbers below follow the arithmetic sequence, what is the 20th number?
根據以下的等差數列，問第 20 個數是甚麼？
21、31、41、51、61、…

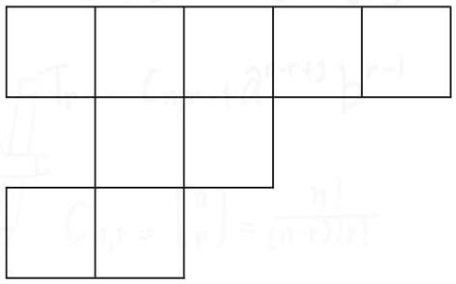
16. How many 3-digit number(s) that have the unit digit 0 is / are there?
有多少個三位數的個位數是 0？

17. What is the largest 2-digit number that can be divisible by 8 and 12?
求最大的兩位數能同時被 8 及 12 整除。

18. Find the largest 3-digit even number.
求最大三位偶數的值。

Geometry
幾何

19. How many square(s) is / are there in the figure below?
請問下圖有多少個正方形？

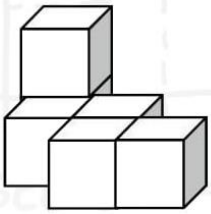


Question 19
第 19 題

20. A prism has 9 faces, how many vertice(s) does this prism have?
有一個柱體有 9 個面，問這個柱體有多少個頂點？

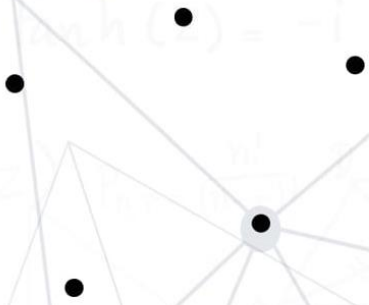
21. A pyramid has 18 vertices, how many face(s) does this pyramid have?
有一個錐體有 18 個頂點，問這個錐體有多少個面？

22. At least how many square(s) can be seen if viewing the figure below from side?
如果從側面視下圖的立體，最少可以看見多少個正方形？



Question 22
第 22 題

23. How many line segment(s) can be formed in the figure below?
請問下圖可連成多少條線段？



Question 23
第 23 題

24. According to the pattern shown below, what is the figure in the space provided?
按以下規律，橫線上的圖案應該是甚麼？

○ □ □ △ △ ○ ○ □ □ △ △ ○ ○ □ _ △ △...

Question 24
第 24 題

Combinatorics
組合數學

25. Separate 54 candies into six equal groups, how many candy(ies) is / are there in each group?
把 54 粒糖果分成六等份，每份有多少粒糖果？

26. Choose 2 digits, without repetition, from 1, 4, 6, 8, 9 to form 2-digit numbers. How many even number(s) is / are there?
從 1、4、6、8、9 中選 2 個不可重複的數位組成兩位數。請問當中有多少個是偶數？（偶數即是雙數）

27. According to the pattern shown below, how many circle(s) is / are there from 1st to 50th symbol counting from the left?
按以下規律，由左數起，由第 1 個至第 50 個符號共有多少個圓形？

○ △ □ ○ ○ △ □ ○ ○ △ □ ○...

28. What is the smallest 5-digit number by using 3, 1, 0, 5 and 8? (Each number can only be used once)
利用 3、1、0、5 和 8 組合成最小的五位數是多少？（每個數字只能用一次）

Mock Exam

29. According to the following sequence for first 190th terms, how many odd number(s) is / are there?
求下列數列中，首 190 項中有多少個奇數？（奇數即是單數）

1, 2, 3, 6, 11, 20, 37, 68, …

30. Peter has 5 $2 coins and 6 $5 coins. How many $10 coins can he exchange?
彼得有 5 枚 2 元、6 枚 5 元硬幣，他可換多少個 10 元硬幣？

~ 全卷完 ~
~ End of Paper ~

ĐỀ 2:

Logical Thinking

1. If yesterday was Saturday, which day of the week will it be after tomorrow?

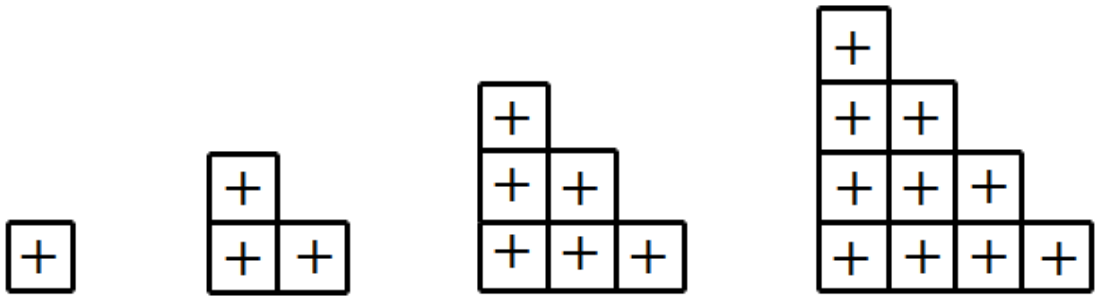
2. What is the greatest possible number of Saturday(s) in one month?

3. A student needs to finish a math test within 45 minutes. How many minute(s) is/ are required for 11 students to finish the test independently?

4. According to the pattern shown below, what is the number in the blank?

1, 9, 17, 25, 33, ____

5. According to the pattern below, how many "+" is / are there in the 8th figure?



Arithmetic

6. Find the value of 1 + 3 + 5 + 7 + 9 .

7. Find the value of 24 + 32 – 7.

8. Find the value of 7 – 7 + 7 – 7 + 7 – 7 + 7.

9. What is the number that should be filled in the blank to make the equation correct?

56 – __ = 22

10. B is a 1-digit number. What is the value of B if the equation below is correct?

$$14 - B = B$$

Number Theory

11. Anna has 12 books and Noah has 6 books. If Anna wants them to have the same number of books, how many book(s) does Anna have to give to Noah?

12. Fill in the blanks with '+' and '-' to make the equation below correct (write down the signs from left to right).

$$2 \_\_ 3 \_\_ 4 \_\_ 5 = 4$$

13. Fill in the blanks with '+' and '-' to make the equation below correct (write down the signs from left to right).

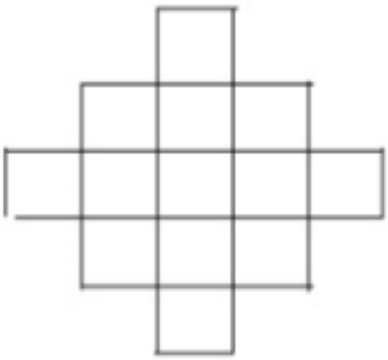
$$5 \_\_ 7 \_\_ 9 \_\_ 3 = 6$$

14. How many 2- digit odd number(s) is/ are there?

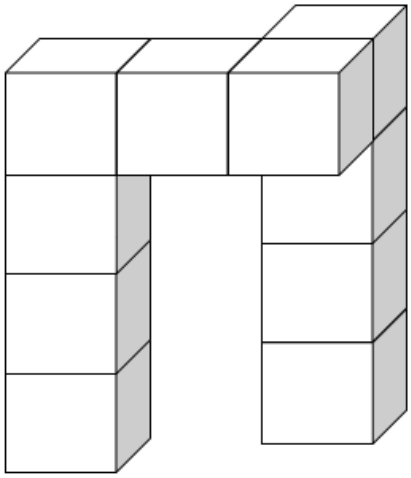
15. Determine whether the result of $2 + 4 + 6 + 8 + 10 + 12 + 14 + 16 + 18 + 20 + 22$ is odd or even.

Geometry

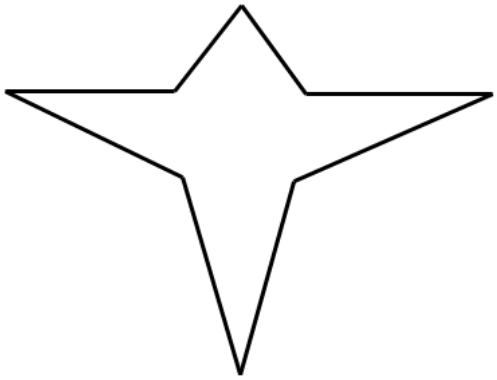
16. How many quares is/ are there in the figure below?



17. How many cubes(s) is/ are there in the figure below?



18. How many side(s) is/ are there in the polygon below?



19. According to the pattern shown below, what are the figures in the space provided?

20. Find the smallest 3-digit odd number.

Combinatorics

21. Which number below is the smallest?

30994567 ; 30996782 ; 30994223 ; 30998745

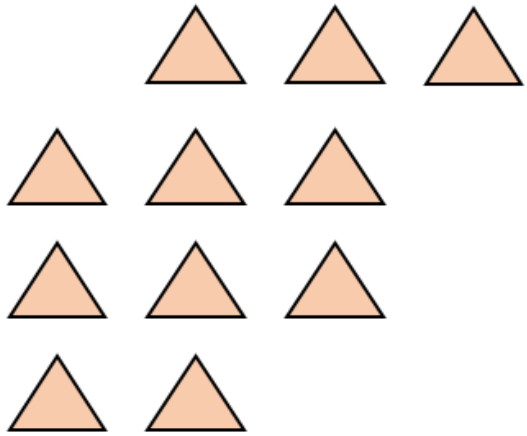
22. Choose 2 digits from 1, 4, 6, 8 without repetition to form 2–digit numbers. How many different number(s) is/ are there?

23. Among the following numbers, how many odd number(s) is/ are there?

3, 3, 5, 6, 8, 9, 27, 30, 42

24. Find the smallest 3–digit number formed by choosing 3 digits from {4, 7, 3, 1}. (Each digit can be used only once)

25. Anna has to pick up all triangle pieces on the floor. She can only move up, down, left and right. What is the minimum distance (in meters) that she needs to travel, given that the distance between two adjacent triangles is 1 meter?



ĐỀ 3:

Logical Thinking

1. If yesterday was Friday, which day of the week will the day after tomorrow be?

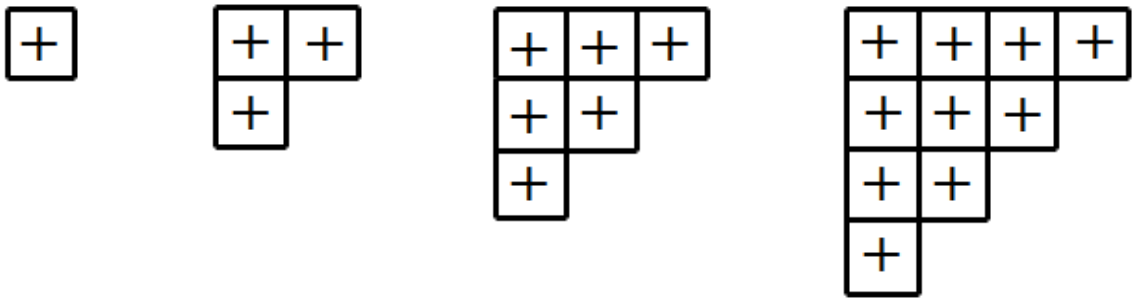
2. What is the greatest possible number of Monday(s) in one month?

3. A student needs to finish HKIMO Heat Round within 90 minutes. How many minute(s) is / are required for 10 students to finish the contest independently?

4. According to the pattern shown below, what is the number in the blank?

1 、 7 、 13 、 19 、 25 、 31 、 __ 、....

5. According to the pattern shown below, how many "+" is / are there in the 10th group?



1st group 2nd group 3rd group 4th group

Arithmetic

6. Find the value of 1 + 2 + 4 + 5 + 6 + 8 + 9

7. Find the value of 36 + 13 - 6

8. Find the value of 5 – 5 + 5 – 5 + 5 – 5 + 5 – 5 + 5

9. What is the number that should be filled in the blank if the equation below is correct?

7 – 6 + __ = 10

10. What is the value of *B* if the following equation is correct?

$B + B + B = 18$

Number Theory

11. Amy has 13 apples and John has 5 apples. How many apple(s) does Amy have to give John to make them have the same number of apples?

12. Fill in the blanks with ' + ' and ' – ' to make the equation below correct. (Write down the signs from left to right)

1__3__ 5__ 7 = 2

13. Fill in the blanks with ' + ' and ' – ' to make the equation below correct. (Write down the signs from left to right)

1__2__3__4__5 = 3

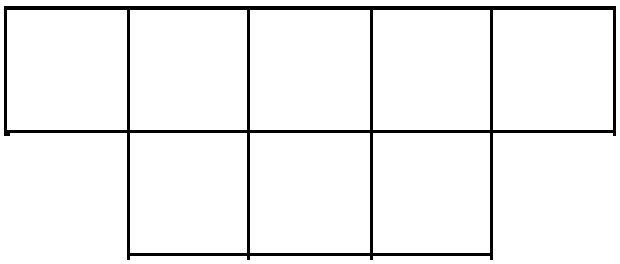
14. How many two-digit odd number(s) is / are there?

15. Determine whether the result of A is odd or even if A is given as follows:

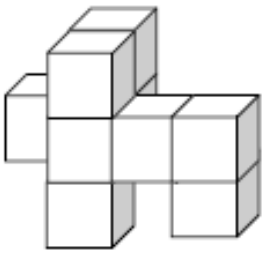
$$A = 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 + 21.$$

Geometry

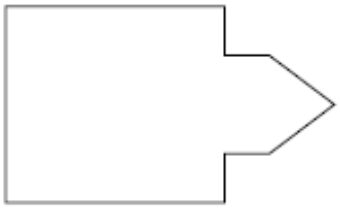
16. How many square(s) is / are there in the figure below?



17. How many cube(s) is / are there in the figure below?



18. How many side(s) is / are there in the polygon below?

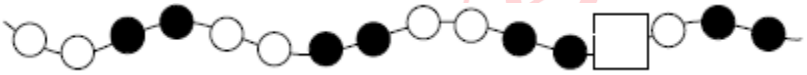


19. According to the pattern shown below, what is the figure in the space provided?

○ □ □ □ △ ○ □ □ □ △ ○ □ □ _ △...

Combinatorics

20. According to the pattern shown below, what is the figure in the box provided?



21. Which number below is the smallest?

20180831 ; 20180506 ; 20180512 ; 20180901

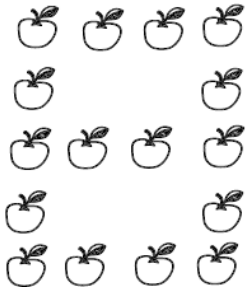
22. Choose 2 digits (without repetition) from 1, 2, 7 and 0 to form two-digit numbers. How many different number(s) is/are there?

23. In the following sequence of numbers, how many odd number(s) is/are there?

1, 1, 2, 4, 7, 13, 24, 44

24. What is the smallest 3-digit number formed by choosing 3 digits from 3, 6, 1 and 0? (Each digit can be used only once)

25. Min would like to pick up all  on the floor. Given that Min can only move up, down, left and right, what is the minimum distance (in meter) that he needs to travel? The distance between 2 adjacent apples is 1 meter.



ĐỀ 4:

Logical Thinking

1. According to the pattern shown below, what is the number in the blank?

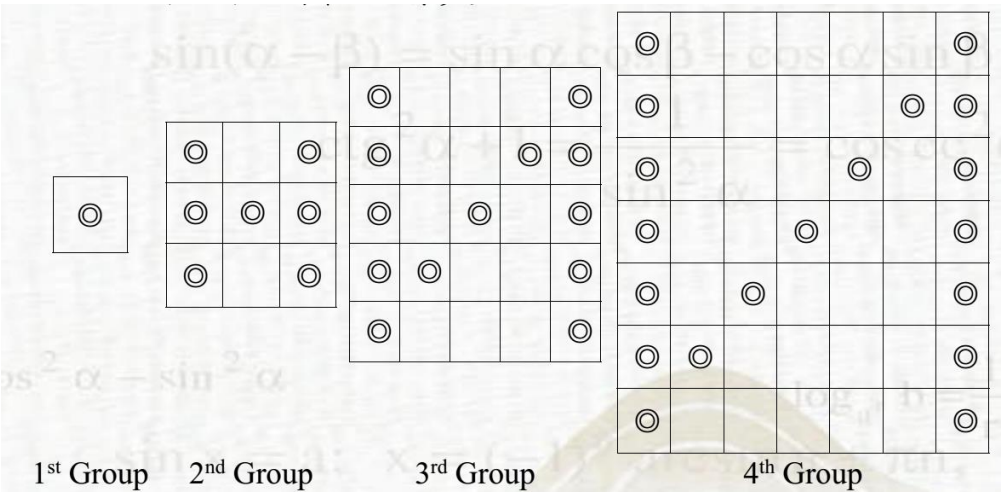
8 、 10 、 14 、 20 、 28 、 38 、 __ 、 ….

2. If the day after tomorrow will be Wednesday, which day of the week will it be 5 days later?

3. 30 children form a column. Alice is the 11^{th} starting from the front. What is her position counting from the back?

4. Alice needs 10 minutes to finish a lap. Then she needs to rest 1 minute. How many minute(s) does it take her to finish 10 laps?

5. According to the pattern shown below, how many ◎ is / are there in the 9^{th} group?



Arithmetic

6. Find the value of $1 + 3 + 5 + 7 + 9 + 11 + 13 + 15$.

7. Find the value of $3 \times 3 + 6 \times 2 + 9 \times 1 + 18 \times 2$.

8. Find the value of $123 + 294 + 377 + 206$.

9. What is the number that should be filled in the blank if the equation below is correct?

____ - 15 = 30

10. Refer to the puzzle, find the value of B.

$$\begin{array}{r} A \\ +\ AB \\ \hline 91 \end{array}$$

Number Theory

11. Alice has 31 pencils and Peter has 92 pencils. How many pencil(s) does Peter need to give Alice so that he has 11 fewer pencils than Alice does?

12. 15 students sit for a test and their sum of scores is even. Among them, 7 students have an odd number of scores and 3 students have an even number of scores. Determine whether the sum of scores of the remaining children is odd or even.

13. The numbers below follow the arithmetic sequence. What is the 9^{th} number?

198、 187、 176、 165、 154、 …

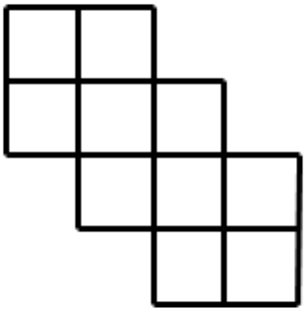
14. After Alice gives 8 pencils to Peter and takes 6 pencils from Mary, they will have an equal number of pencils. How many pencil(s) did Mary have more than Peter originally?

15. Fill in the blanks with ' + ' and ' × ' to make the equation below correct.

1 ___ 1 ___ 4 ___ 4 ___ 5 = 23

Geometry

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

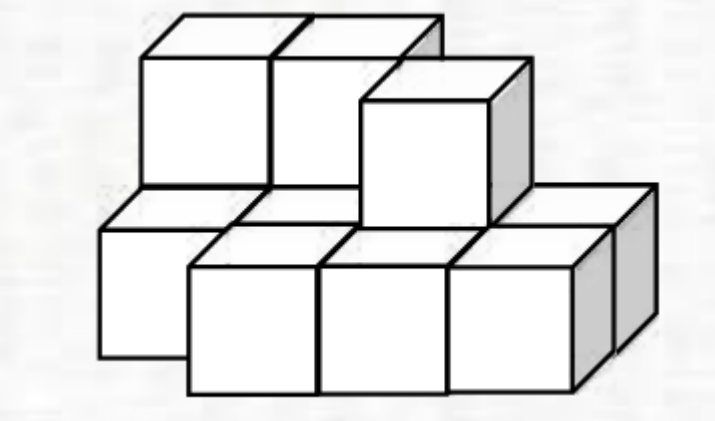


17. A prism has 16 faces, how many vertice(s) does this prism have?

18. By observing the pattern, what is the missing figure?

■、▲、★、★、■、▲、★、★、■、?、★、★、■、▲、★、

19. At least how many square(s) can be seen if viewing the figure below from top?



20. At most how many line(s) can be formed by using 6 points on a plane?

Combinatorics

21. How many 3-digit number(s) is / are there such that their unit digits must be smaller than 5?

22. What is the greatest 4-digit number formed by using 2, 4, 6 and 8 (without repetition) given that it is divisible by 4?

23. Pick 2 children from 10 a group children to take part in an interview. How many different combination(s) is / are there?

24. How many odd number(s) is / are there in the following numbers from the 4^{th} term to the 18^{th} term?

1, 2, 3, 5, 8, 13,…

25. Alice has five \$1 coins, four \$2 coins and five \$5 coins, how many value(s) of a product can she buy without any change

ĐỀ 5:

Logical Thinking

1. According to the pattern shown below, what is the number in the blank?

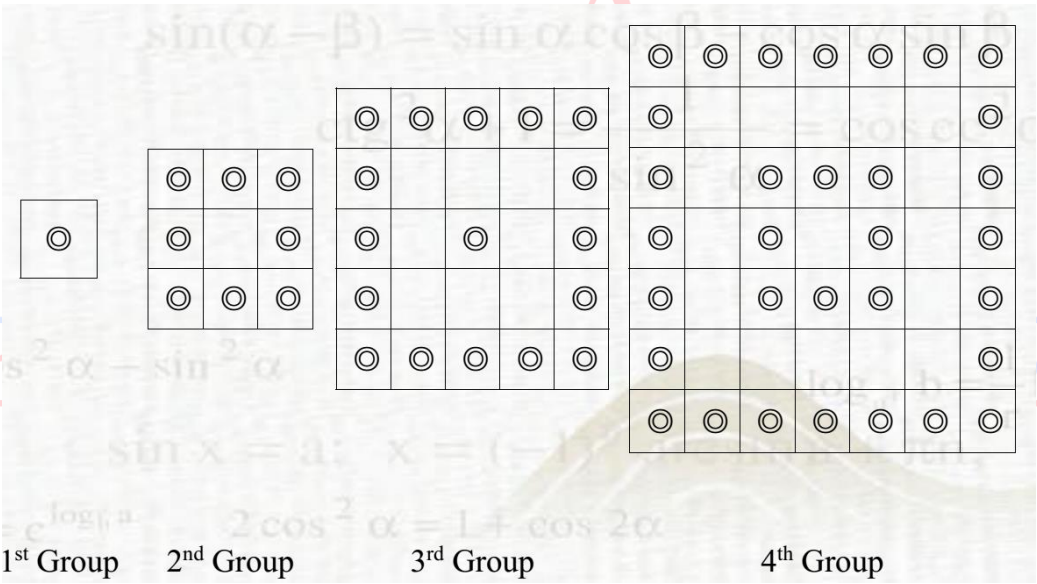
1 、 1 、 3 、 5 、 9 、 15 、 __ 、 ….

2. The day before yesterday was Wednesday. Which day of the week is 87 days later?

3. The age of Alice 11 years later is equal to the age of Peter 5 years later. How old is Peter when Alice is 18 years old?

4. 37 students line up where Alice is the 18th counting from the front. How many student(s) is / are behind her?

5. According to the pattern shown below, how many ◎ is / are there in the 6th group?



Arithmetic

6. Find the value of 179 + 219 +121 +181 + 281 +119 .

7. Find the value of 17×118 + 31×17 +17× 51 .

8. Find the value of 500 ÷ 2 + 500 ÷ 4 + 500 ÷5 + 500 ÷10 + 500 ÷50 .

9. Find the value of 5 +15 + 25 + 35 + 45 + 55 .

10. Find the value of $1017 \div 8 - 129 \div 8$.

Number Theory

11. Define the operation symbol $a \otimes b = (a + 2) \times (b - 3)$, find the value of $2 \otimes 5$.

12. Alice and Peter have 164 candies in total. Alice has 24 candies more than Peter. How many candies does Alice have?

13. The numbers below follow the arithmetic sequence, what is the sum of the 7^{th} term and the 9^{th} term?

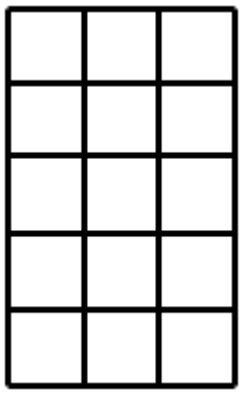
8、 14、 20、 26、 32、 …

14. What is the sum of the largest and the smallest 3-digit multiple of 13?

15. The sum of 3 consecutive odd numbers is 27. Find the product of all the numbers.

Geometry

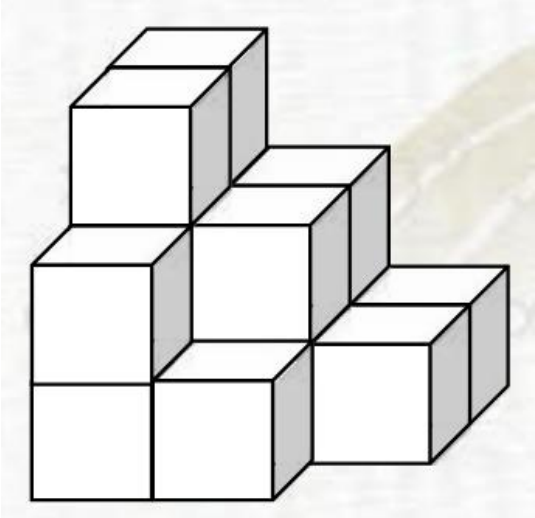
16. How many square(s) is / are there in the figure below?



17. A prism has 36 edges, how many face(s) does this prism have?

18. A square of side length 10cm is cut into 25 squares of side length 2cm. What is the difference in total perimeter between 25 small squares and the larger square?

19. At least how many distinct square(s) can be seen if the figure below is observed from the right?



20. By observing the pattern, what is the missing figure?

Combinatorics

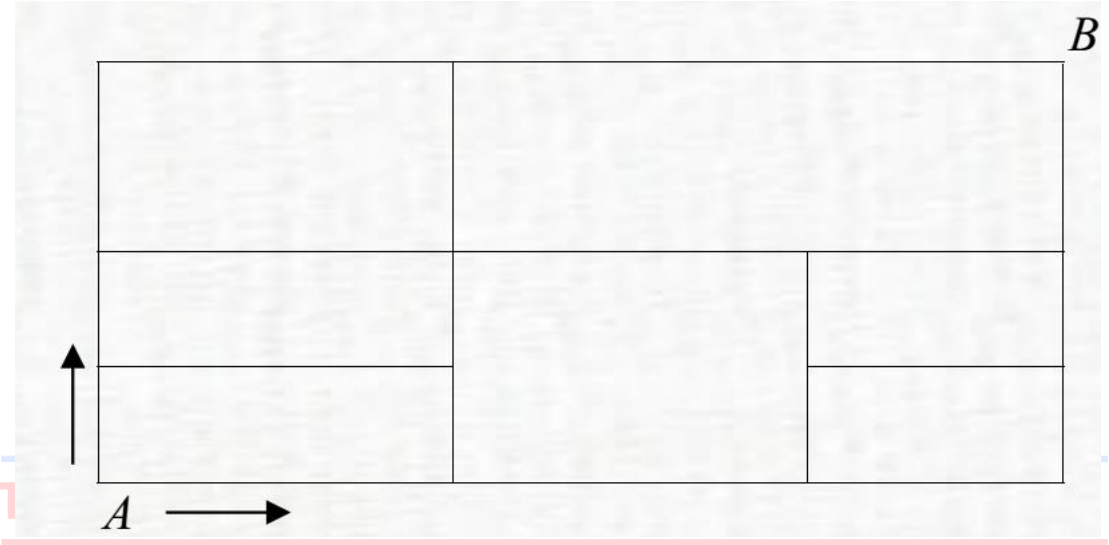
21. After Alice takes 11 peanuts and 6 peanuts from Peter and Mary respectively, they will have equal number of peanuts. How many peanut(s) did Peter have more than Alice originally?

22. Choose 3 digits from 2, 4, 6, 8, 9 to form 3-digit numbers. How many number(s) that can be odd number and greater than 300 is / are there? (The repetition of digits is allowed)

23. Numbers are drawn from 32 integers ranging from 10 to 41. At least how many number(s) should be drawn at random to ensure that there are two numbers whose product is divisible by 4?

24. 35 students are wearing size L, M or S uniforms. At least how many student(s) is / are wearing the same size of uniforms?

25. If Alice goes from point A to point B, each step can only move up or move right. How many way(s) is / are there?



Keys Đề 1:

Thailand International Mathematical Olympiad Mock Exam 2018 - 2019

Primary 2 Answer Key

Mock Exam

Logical Thinking 邏輯思維		Number Theory 數論		Combinatorics 組合數學	
1)	6	13)	50	25)	9
2)	N	14)	34	26)	12
3)	23	15)	211	27)	25
4)	44	16)	90	28)	10358
5)	39	17)	96	29)	95
6)	Sun / 日	18)	998	30)	4
Arithmetic / Algebra 算術 / 代數		**Geometry 幾何**			
7)	90	19)	10		
8)	150	20)	14		
9)	9	21)	18		
10)	8	22)	4		
11)	29	23)	10		
12)	64	24)	□		

Keys Đề 2:

Câu	1	2	3	4	5	6	7	8	9	10
	Tuesday	5	45	41	36	25	49	7	34	7
Câu	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
	3	+,+,-	+,-,+	45	even	18	10	8	△,△	101
Câu	**21**	**22**	**23**	**24**	**25**					
	30994223	12	5	134	10					

Keys Đề 3:

Câu	1	2	3	4	5	6	7	8	9	10
	Monday	5	90	37	55	35	43	5	9	6
Câu	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
	4	+,+,-	-,+,-,+	45	Odd	10	9	9	□/Square	○/White circle
Câu	**21**	**22**	**23**	**24**	**25**					
	20180506	9	4	103	15					

Keys Đề 4:

Câu	1	2	3	4	5	6	7	8	9	10
	50	Sat	20	109	49	64	66	1000	45	3
Câu	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
	36	Odd	110	14	+,+,×,+	13	28	▲/Triangle	9	15

Câu	21	22	23	24	25					
	450	8624	45	10	38					

Keys Đề 5:

Câu	1	2	3	4	5	6	7	8	9	10
	25	Mon	24	19	64	1100	3400	535	180	111
Câu	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
	8	94	100	1092	693	26	14	160	8	▲/Triangle
Câu	**21**	**22**	**23**	**24**	**25**					
	28	20	18	12	10					