

亞洲國際數學奧林匹克聯合會

ASIA INTERNATIONAL MATHEMATICAL OLYMPIAD UNION



亞洲國際數學奧林匹克公開賽初賽

Asia International Mathematical Olympiad Open Trial

小二組 Grade 2

時限：70 分鐘

Time allowed: 70 minutes

試題

Question Paper

本試題不可取走。

THIS QUESTION PAPER CANNOT BE TAKEN AWAY.

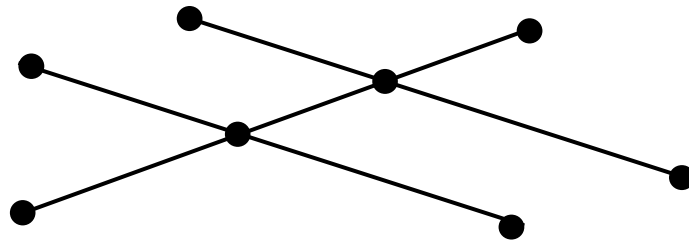
未得監考官同意，切勿翻閱試題，否則參賽者將有可能被取消資格。

DO NOT turn over this Question Paper without approval of the examiner.

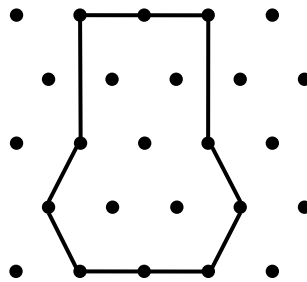
Otherwise, contestant may be DISQUALIFIED.

Section A – each question carries 4 marks

1) How many line segments are there in the figure below?



2) In the figure, the area of each equilateral triangle formed by three neighboring points is 1 cm^2 . Find the area of the figure.



3) Find the value of $71 + 57 + 62 + 38 + 43 + 29$.

4) Find the value of $15 - (79 - 85) + 74$.

5) It is known that 1 foot equal 12 inches. A 18-foot long rope is cut into segments 2 feet 3 inches long. How many segments are cut in this way?

All answers should be written on the ANSWER SHEET.

- 6) A group of children form 3 queues. The first queue has 34 children, the second queue has 17 students, the third queue has 63 children. How many children, at least, are needed to move from the third queue to other queues to make the number of children in each queue equal?
- 7) It is known that a right prism has 12 vertices, how many edges does that prism has?
- 8) Charles wishes to buy a \$3.4 pen without changes. How many ways can he pay for the product if he has a lot of each \$1, 50 cents and 20 cents coin?

~ End of section A ~

Section B – each question carries 5 marks

- 9) Find the value of $18 + 27 - 36 - 45 - 54 - 63 + 72 + 81$.
- 10) Find the value of $(32 + 33 + 34 + \dots + 46) - (26 + 27 + 28 + \dots + 40)$.
- 11) William and David has a total of 74 bananas. David has 26 more bananas than William. How many bananas does David have?
- 12) A pyramid is formed by using 15 clay balls and 28 bamboo sticks. If the base of the pyramid is a polygon. How many sides does the polygon have?
(Clay balls cannot be broken down as several balls, and the sticks cannot be bent)

All answers should be written on the ANSWER SHEET.

- 13) A group contains 8 students and each student needs to take a photo with the others. If there are only 2 people in each photo, how many photos in total will be taken in this way?
- 14) In the attached cryptarithm, each of A , B , C , and D each represents a one-digit integer. Find the value of $A + B + C$.

$$\begin{array}{r} \boxed{A} \quad 2 \quad 7 \\ \quad 4 \quad 7 \quad \boxed{C} \\ + \quad \quad \boxed{B} \quad 2 \\ \hline \quad 7 \quad 3 \quad 2 \end{array}$$

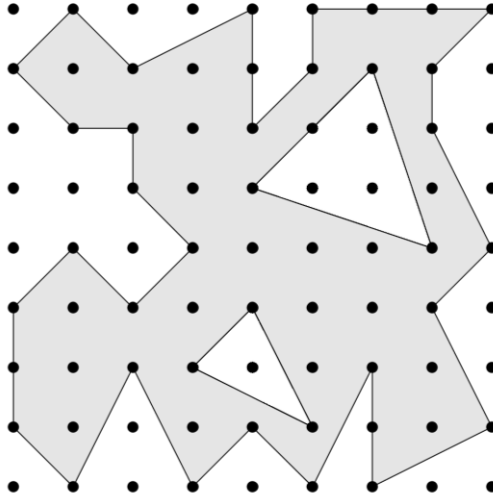
- 15) Starting from 2p.m., Johnny watches three movies each 100 minute long. If Johnny takes a 40-minute break after watching each movie, what is the time after he finished all the movie. (Express your answer in terms of XX:XX pm)
- 16) Find the value of $(2016 \times 1 + 1916 \times 2 + 2716 \times 3) \div (679 \times 12 + 3832 + 2016)$.

~ End of section B ~

All answers should be written on the ANSWER SHEET.

Section C – each question carries 7 marks

- 17) In the figure, the area of the each small square is 1 unit square. Find the area of the shaded region.



- 18) Christy has some \$5, \$2 and \$1 coin. She has 4 coins of each type. How many different face values can she form using those coins?

- 19) In the attached cryptarithm, each of A , B , C , and D each represents a one-digit integer. Find the value of the 4-digit number \overline{ABCD} .

$$\begin{array}{r}
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 + \\
 \hline
 2
 \end{array}$$

- 20) There are 216 balls. One of the balls is lighter than the others and the others carry equal weights. By using only a balance, at least how many times are needed to find the lighter ball?

~ End of Paper ~