



ISMC International Singapore
Maths Competition

INTERNATIONAL SINGAPORE MATHS COMPETITION (Primary 6)

60 minutes

Instructions to participants

1. Do not open the booklet until you are told to do so.
2. Attempt ALL 25 questions.
3. Write your answers neatly in the Answer Sheet provided.
4. Marks are awarded for correct answers only.
5. All figures are not drawn to scale.
6. Calculators may be used.

Questions in Section A carry 2 marks each, questions in Section B carry 4 marks each and questions in Section C carry between 6 to 10 marks each.

Jointly organised by



Section A

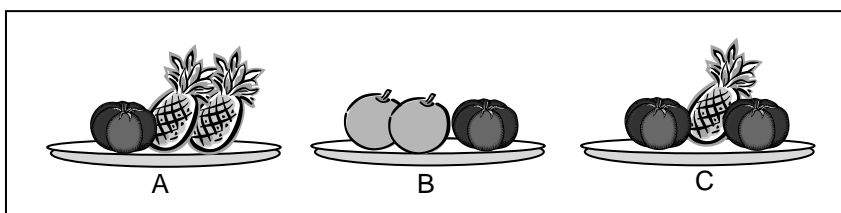
Each of the questions 1 to 10 carries 2 marks.

1. Find the greatest 4-digit number which when decreased by 1 is exactly divisible by 2, 3, 4, 5, 6 and 7.

2. What is the value of v in the equation below?

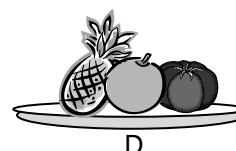
$$\frac{4}{v} = \frac{v}{9}$$

3. Three plates of fruits A, B, and C are arranged in increasing order of their total mass.



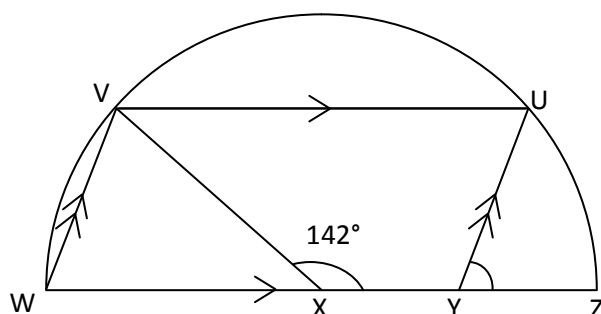
To keep this order, where should plate D be placed?
Choose one of the following:

- Before A
- Between A and B
- Between B and C
- After C

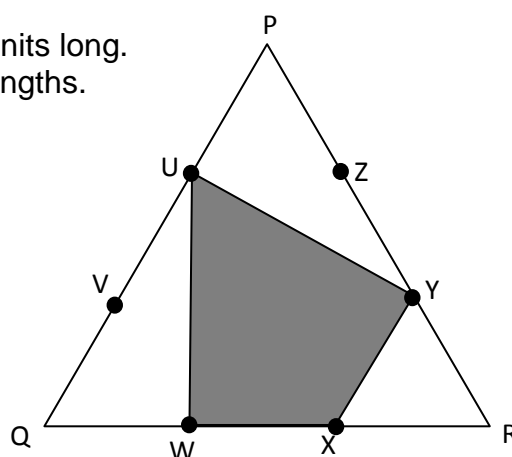


4. The digits 1, 3, 5, 6 and 8 make up a five-digit number. The digit 6 is between the two digits that add up to its value. The digit in the 'Ten Thousands' place is not an odd digit. The number is divisible by 11 and 13. What is this number?

5. In the diagram below, WZ is the diameter of the semicircle. X is the midpoint of the line WZ. UVWY is a parallelogram. Find the value of $\angle UYZ$.



6. Each side of the equilateral triangle PQR is 3 units long. U, V, W, X, Y and Z divide the sides into unit lengths. What fraction of triangle PQR is shaded?

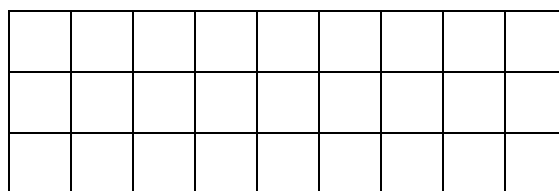


7. If $\frac{1}{3}$ of A = $\frac{3}{5}$ of B, what is the ratio of A to B?

8. Mark, Daniel and Jess shared a sum of money. Daniel received 25% more than Mark. Jess received 20% less than Mark. How many percent less than Daniel did Jess receive?

9. If $p^2 = p \times p$, find the value of $(\frac{1}{2} + \frac{1}{T})^2$.

10. Yani pasted some stickers in the 3 by 9 grid below such that each small square of the grid either had a sticker or had a common side with a square which had a sticker. What was the least number of stickers Yani could have pasted inside the grid?

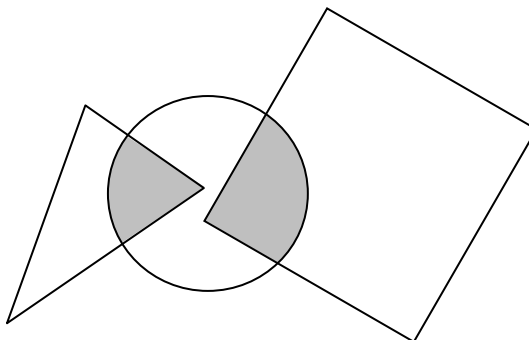


Section B

Each of the questions 11 to 20 carries 4 marks.

11. If all the numbers in the number pattern, 1, 1, 1, 1, 2, 2, 2, 2, 3, 3, 3, 3, ... n, n, n, n add up to 1860, what is n?
12. Five boys weighed themselves in pairs in all possible combinations. The masses of all the different pairs were 100 kg, 102 kg, 103 kg, 104 kg, 105 kg, 106 kg, 107 kg, 108 kg, 110 kg and 111 kg. What was the difference in mass between the heaviest boy and the lightest boy?

13. The given figure consists of a triangle, a circle and a square. All three shapes have the same area. The ratio of the unshaded area of the triangle to the whole area of the triangle is 5 : 8. Half of the circle is unshaded. What fraction of the whole figure is unshaded?



14. 220 pupils took part in an IQ competition. 30% of the boys and 40% of the girls scored Distinction. Ten more boys than girls scored Distinction. How many boys took part in the IQ competition?

15. The answer for $\frac{(n+3)}{(n-1)}$ is a whole number.
What is the sum of all the possible values of n ?

16. If $\frac{1}{x} - \frac{1}{y} = \frac{1}{3540}$, what are the values of x and y , if they are consecutive numbers and x is smaller than y ?

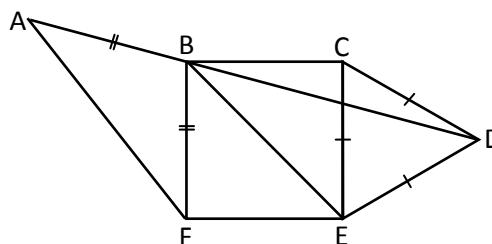
17. There were 87 children at a party. They were served chicken wings, sausages and spring rolls.

54 of them ate some chicken wings,
 19 of them ate some sausages and
 58 of them ate some spring rolls.

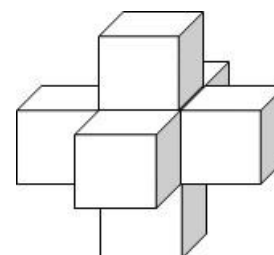
1 child ate all three items,
 6 children ate only chicken wings and sausages,
 4 children ate only sausages and spring rolls, and
 x number of children ate only chicken wings and spring rolls.
 Every child ate something.

How many children ate only 1 type of food?

18. In the figure shown below, BCEF is a square, CDE is an equilateral triangle and ABD is a straight line. Find the value of $\angle BAF$. (Figure is not drawn to scale.)



19. Seven cubes of the same size are glued together face to face as shown in the diagram below. What is the surface area of the solid if its volume is 1512 cm^3 ?



20. Before her last test, Gracie's average score of all her tests was 74%. For her last test, she scored 84% which increased her average score to 76%. Now Gracie has only one more test to take. What is her highest possible average after this last test?

Section C

Questions 21, 22, 23, 24 and 25 carry 6, 7, 8, 9 and 10 marks respectively.

21. There were 60 more plates than bowls used at a banquet. After $\frac{3}{5}$ of the plates and $\frac{2}{3}$ of the bowls were cleared away, there were 46 plates and bowls left. How many plates were there at first?
22. There are some red and blue balls in a box. If 23 red balls were removed, the ratio of the number of red balls to that of the blue balls would be 1 : 2. If 80 blue balls were removed instead, the ratio would become 5 : 1. How many red balls are there in the box?

23. Magi the magician puts 3 yellow, 3 green and 3 red eggs in each of 2 hats. Without looking into the hats, he transfers 4 eggs from Hat 1 to Hat 2. Still without looking into the hats, what is the least number of eggs must he draw from Hat 2 to return to Hat 1 to ensure that there will be at least 3 eggs of each colour in Hat 1?
24. Ten boys played Rock-Paper-Scissors to determine who was the smartest. Every boy played against each of the other boys once. In each game, the winner received 3 points, the loser received 0 points, and in case of a draw, each of the two boys received 1 point each. The total number of points given was 125. How many games ended with a draw?

25. Three men, A, B, and C, worked together to paint a mural. If the painting was done by only one man, the time needed for A, B or C would have been 9 hours, 10 hours or 12 hours respectively. A and B together painted for 3 hours after which A rested. B and C then continued with the painting. What was the total time taken to complete the mural?

End of Paper