



INTERNATIONAL SINGAPORE MATHS COMPETITION 2016 (Primary 5)

1 hour 30 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

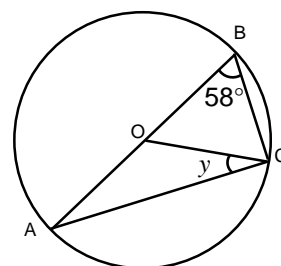
Each of the questions 1 to 10 carries 2 marks.

1. There are four Primary 5 classes.
Class 5A and 5B have 81 students in total.
Class 5B and 5C have 83 students in total.
Class 5C and 5D have 86 students in total.
Class 5A has 2 more students than class 5D.
How many students are there in each class?
2. How many different 6-digit numbers in the form 3ABABA are divisible by 6, if A and B are different digits?
3. Four suspects in a robbery, Andy, Beng, Chum and David, are giving their statements.
Andy: "I didn't steal anything."
Beng: "Andy was the robber."
Chum: "It wasn't me."
David: "It was Beng."

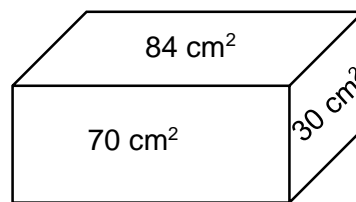
If only 1 person was telling the truth, who was the robber?

4. There are twice as many boys as girls in a class. The average mass of the boys is 41 kg, and the average mass of the girls is 35 kg. What is the average mass of the whole class?

5. $OA = OB = OC$ since they are radii of the circle shown. AOB is a straight line. If $\angle OBC = 58^\circ$, what is $\angle OCA$?



6. The areas of the faces of a rectangular box are 84 cm^2 , 70 cm^2 and 30 cm^2 . What is the volume of the box?

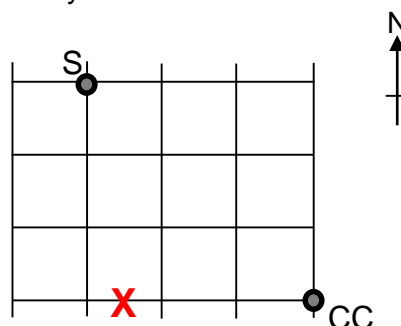


7. Mary cut off $\frac{2}{5}$ of a piece of string. Later, she cut off another 14 m. The ratio of the length of string remaining to the total length cut off is 1 : 3. What is the length of the remaining string?
8. A chicken farm receives young chickens when they are a month old, keeps and feeds them till they double their mass before selling them. If the chickens gain weight at the rate of 20% per week, for a minimum of how many weeks does the chicken farm keep the chickens?
9. $\ln \frac{1}{A} + \frac{7}{3A} = \frac{5}{6}$ where A is a digit, what is the value of A?
10. Paul plays a video game in which he scores 4 points for a hit and is deducted 6 points for a miss. After 20 rounds his score is 30. How many times did he miss?

Section A

Each of the questions 11 to 20 carries 2 marks.

11. A march goes through the streets from the School (S) to the Community Centre (CC). One of the streets is closed. If the march can only travel East or South, what is the number of different possible ways to get to the Community Centre?



12. Emma, Faith and Gina are three Primary 6 girls. They are from different classes and have different hobbies which are dancing, playing the piano, and baking. With the information below, determine which class each girl is in and their respective hobbies.

Emma does not like dancing.

Faith does not like playing the piano.

The girl who likes to dance is not from class 6B.

The girl from class 6A likes playing the piano.

Faith is not from class 6C.

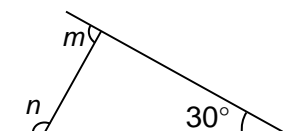
13. There are 3 groups of monkeys in a zoo. There are different numbers of monkeys in each group. Bananas were given such that each monkey from groups A, B and C, got 12 bananas, 15 bananas, and 20 bananas respectively. If equal numbers of bananas were given to each group, what is the ratio of the number of monkeys in groups A, B and C?
14. Of the 250 people who answered a set of questions, 20% of the males and 30% of the females stated that they took public transport. The number of males who took public transport was 5 more than the number of females who took public transport. How many males were there among the 250 people who answered the questions?

15. There were some apples in a basket. Hannah got $\frac{1}{5}$ of the total number of apples plus 5 more. Ivy received $\frac{1}{4}$ of the total number of apples plus 7 more. After Jane took $\frac{1}{2}$ the remaining apples, $\frac{1}{8}$ of the original number of apples was left in the basket. How many apples were there at first?

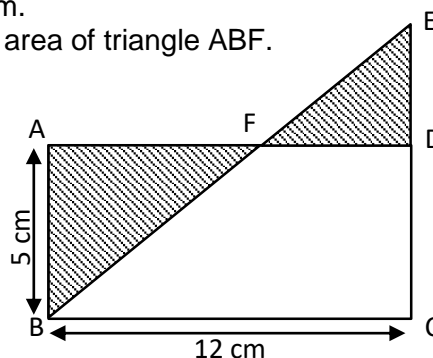
16. Ben was offered jobs from two different companies. Both companies offered him a contract lasting 4 years. Company A offered to pay him \$30,000 per year, with an increase of \$2000 each year. Company B offered to pay him \$2000 per month, with an increase of \$100 per month after the first year. Which company will pay him more over 4 years? How much more?

17. There are four numbers. If we leave out any one number, the average of the remaining three numbers will be 45, 60, 65 or 70. What is the average of all four numbers?

18. In the diagram, the $\angle m$ is $\frac{2}{3}$ the size of $\angle n$. What is the value of m ?



19. ABCD is a rectangle with BC = 12 cm and AB = 5 cm. The area of triangle FED is 15 cm^2 smaller than the area of triangle ABF. Find the length of ED.



20. 50% of the amount of water in Jar A is equal to 30% of the amount of water in Jar B and equal to 24% of the amount of water in Jar C. How many percent more water is there in Jar C than Jar B?

Section C

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

21. Water drips from a tap into an empty container at a steady rate. In $\frac{4}{5}$ hour, the container was $\frac{3}{7}$ full with $2\frac{2}{5}$ litres of water. How many minutes will it take for the container to be $\frac{3}{4}$ full?
22. Grace, Mary, John, Luke and Doris worked together for 175 hours to complete a project. Grace worked 14 more hours than John. Luke worked 25% of the time Mary worked. Doris worked $\frac{1}{10}$ of the total time Luke and Grace worked. Mary and Grace worked equal number of hours. What is the ratio of the number of hours John worked to the number of hours that Doris worked?

23. Sally was given a set of 5 cards numbered 1 to 5 and Peter was also given a set of 5 cards numbered 1 to 5. They were then blindfolded and told to pick a card from their respective sets. The sum of the numbers from the two cards was told only to Sally and the product of the numbers was told only to Peter. They were then told to guess the two numbers. Below is what each of them said:

Peter: I do not know the two numbers.

Sally: Now I know the two numbers.

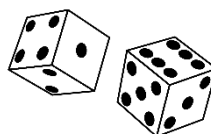
Peter: I still don't know the two numbers.

Sally: Let me help you. The number I was told is larger than the number you were told.

Peter: Now I know the two numbers.

What are the two numbers?

24. If two dice are rolled, which total is most likely?



25. Find the sum of all the numbers in the sequences below.

1, 2, 3, , 48, 49, 50

2, 3, 4, , 49, 50, 51

3, 4, 5, , 50, 51, 52

...

...

50, 51, 52, , 97, 98, 99