

**MATHEMATICS OLYMPIAD COMPETITION - 2019  
SELECTION TEST FOR ZONAL LEVEL TRAINING POOL**

General Instructions.

- Answer all 20 questions.(5 marks per each)
- Write the answer on the dotted line given under each question and it is necessary to mention the relevant units if any with the answer.
- Diagrams are not to scale.

Index No : .....

School : .....

Grade : .....

Time : 1 hour

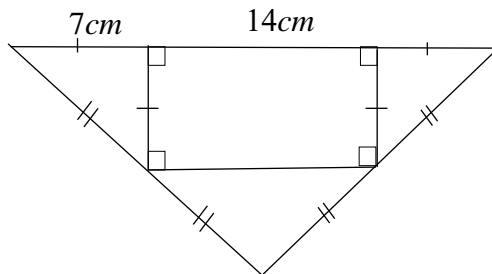
1. Simplify ;  $2019 + 2019 \div 2019$

Answer : .....

2.  $x$  is a positive integer less than 100 and the product of the number of digits in that number is 24.  
How many such numbers are there?

Answer : .....

3. Find the area of the given diagram



Answer : .....

4. What is the sum of all factors in 2019?

Answer : .....

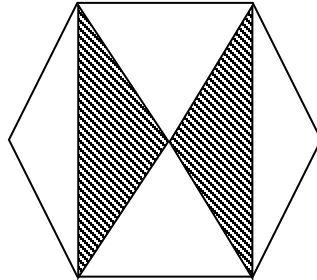
5. Find the value of  $(7007 + 8008 + 9009) \div (3003 + 4004 + 5005)$

Answer : .....

6. 12 cm side lengthen cube is dipped in a paint container and taken back and cut into 3cm side lengthen small cubes. How many small cubes are not coated in any face?

Answer : .....

7. Find the fraction of the shaded area to the total area of the hexagon?



Answer : .....

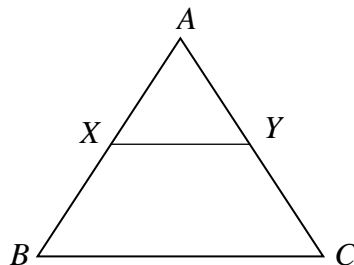
8. The sum of the digits of a prime numbers is a prime number called as an “additive prime number”. How many additive prime numbers are less than 100?

Answer : .....

9. 127 candies are packed in bottles with different number of toffees such that any number of toffees can be taken without opening the bottle. What is the maximum number of candies that can be contained in a bottle?

Answer : .....

10. ABC is an equilateral triangle where X and Y are the mid points of the sides AB and AC respectively. The area of the triangle AXY is  $24\text{cm}^2$ . What is the area of identical hexagon which one side is BC?



Answer : .....

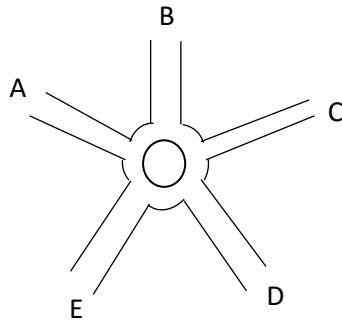
11. A boy has three types of identical balls that differ from colour . 11 balls are not red, 10 balls are not blue and seven balls are not white. Find the total number of balls with him.

Answer : .....

12. The sum of all factors is 6, except factor 6 in number 6. Then 6 is called a perfect number. What is the next perfect number?

Answer : .....

13. A junction of the underpasses routes in the diagram. Any passenger can enter by any route and leave by any route but not leave by the entered route. How many types of exits are there?



Answer : .....

14.  $ABC$  is an integer with three digits and  $A, B, C$  represents the digits.  $CBA$  is the number that you receive when switching between digits. If  $2ABC + CBA = 567$ , What's the value of  $A + B + C$  ?

Answer : .....

15. Any group of children can speak one or two languages in either English or French. Of those of them who could speak English,  $\frac{2}{3}$  of the total number, speak French  $\frac{2}{3}$  of the total number of them. Which fraction of the group is able to speak both languages?

Answer : .....

16. In the addition given,  $A, B$  and  $C$  are represent different digits. Write all possible triples for  $A, B$  and  $C$ .

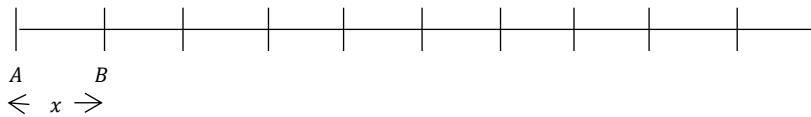
$$\begin{array}{r}
 A \quad B \\
 A \quad B \\
 + \quad A \quad B \\
 \hline
 C \quad C \quad C \\
 \hline
 \hline
 \end{array}$$

Answer : .....

17. A person takes 4 days to travel from A to B and take 5 days to return. If he travel less than 1km than the previous day in the last 9 days, find the distance between cities.

Answer : .....

18. 11-points marks have scored on a straight line from left to right. The total number of distance to other points from the first point is  $2019\text{cm}$ . The total number of distance to other points from the second point is  $2001\text{cm}$ . Find the distance between the first two points.

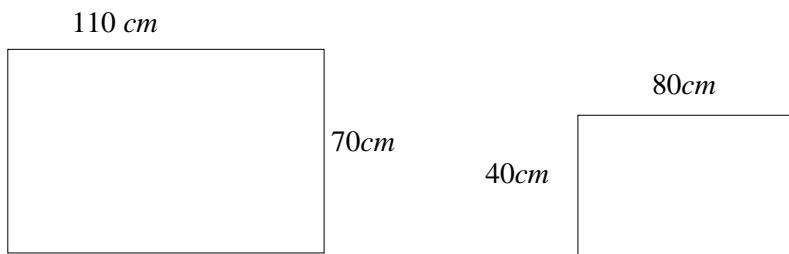


Answer : .....

19. A, B, C, D have been instructed to take same number of books from 4 book shelves. But A takes less than two, B takes more than two, C takes two times , D takes half from due amount. If they have taken 45 books, altogether what is the number of books A has taken?

Answer : .....

20. Three rectangles are joined together to form one large rectangle. There are two measurements. Find the maximum perimeter can be obtain for the remaining rectangle.



Answer : .....