

PRIMARY SCHOOL  
CHALLENGE 2019

**LEVEL 2 CHALLENGE**  
**GRADE 6 AND 7 ROUND TWO**

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**INSTRUCTIONS**

1. The time allocated for this paper is  $1\frac{1}{2}$  hours.  
All participants must remain for the full allocated time.  
Under no circumstances may extra time be given.
2. This paper consists of two sections.  
Section A consists of 10 multiple choice questions.  
Section B consists of 5 questions where working out must be shown.
3. Question 1 – 10 are worth 2 marks each.  
Question 11 – 15 are worth 4 marks each.
4. Negative marking will not be applied.
5. Calculators (and other calculating devices) and geometry instruments are not allowed.
6. Figures are not necessarily drawn to scale.
7. Answer all questions on the answer sheet provided.
8. Circle the letter you have chosen as your answer in pen for Section A (Questions 1 – 10).  
Should you wish to change an answer, put a cross over the letter and then circle your new chosen letter.
9. For Section B (Questions 11 – 15), full working must be shown in the space provided.  
Your final answer must be written in the allocated space.
10. Paper may be used for rough working.

## SECTION A

1. What is the value of  $2019 - \frac{2019}{10} + \frac{2019}{100}$  ?

- A. 1837,29    B. 1819,119    C. 1838,29    D. 2241,09    E. 1827,29

2.  $N$  is a fraction between 0 and 1. Which of the following statements must always be true?

(1)  $2 \times N$  is a fraction                      (2)  $N$  is greater than  $N \times N$

(3)  $1 \div N$  is a fraction                      (4)  $5 \times N$  is less than  $3 \times N$

(5)  $1 \times N$  is a fraction

- A. (2) and (4) only    B. (5) only    C. (1) only    D. (2) and (5) only    E. (3) and (5) only

3. If  $(\otimes + \otimes) \times \triangle = 40$  and  $\triangle \times \triangle + \otimes = 29$ , where  $\otimes$  and  $\triangle$  are whole numbers, what is the value of  $(\otimes + \triangle) \times \otimes$  ?

- A. 45            B. 36            C. 41            D. 19            E. 120

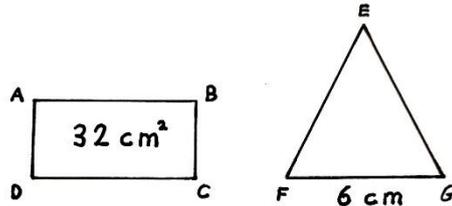
4. A class of school pupils lined up one behind the other. Brian was standing 7<sup>th</sup> from the front. Penny was standing 7 places behind Brian, and 20<sup>th</sup> from the back. How many pupils were in the line?

- A. 34            B. 38            C. 31            D. 33            E. 32

5. A number is divisible by another number if there is no remainder.  
 A number is divisible by 8 if its last three digits are divisible by 8.  
 A number is divisible by 9 if the sum of its digits is divisible by 9.  
 M and N are single digits in the number 47M25N.  
 If this number is divisible by 72, what is the value of M+N?

- A. 12            B. 10            C. 8            D. 14            E. 9

6. A piece of wire 40 cm long is cut into two pieces. The first piece is bent to exactly form a rectangle ABCD of area  $32 \text{ cm}^2$ , where  $AB = 2 \times BC$ . The rest of the wire is bent to exactly form an isosceles triangle EFG where the base  $FG = 6 \text{ cm}$ . What is the area of the triangle EFG in  $\text{cm}^2$  ?



- A. 24      B. 10      C. 30      D. 16      E. 12
7. If  $3 \odot 2 \odot 4 = 7$   
 $4 \odot 5 \odot 3 = 11$   
 $6 \odot 4 \odot 5 = 21$   
 $6 \odot 7 \odot 5 = 29$       what is the value of  $7 \odot 6 \odot 8$  ?
- A. 39      B. 40      C. 43      D. 45      E. 44
8. Mlu has exactly enough money to buy the following :

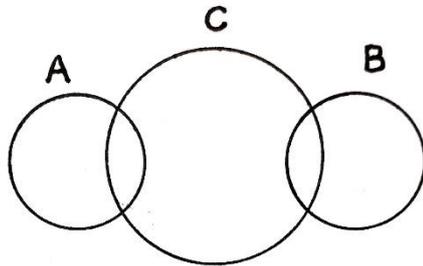
Either 4 pens / 1 ruler / 2 erasers  
 or 1 pen / 4 rulers / 5 erasers.

He decides to use all his money to buy only rulers and erasers.

How many rulers and how many erasers could he buy?

- A. 5 rulers and 6 erasers      B. 4 rulers and 7 erasers      C. 6 rulers and 6 erasers  
 D. 6 rulers and 5 erasers      E. 7 rulers and 4 erasers

9. Rabbits are playing in the circular areas A, B, and C as shown. They can move between areas A and C, and between areas B and C.

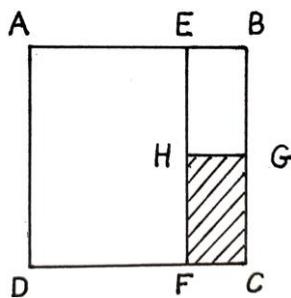


At a certain time :

- the total number of rabbits playing in circle A is 100.
- the total number of rabbits playing in circle B is 120.
- the total number of rabbits playing in circle C is 360.
- the total number of rabbits playing in both circles A and C is 30.
- the total number of rabbits playing in both circles B and C is 40.

How many rabbits are playing altogether?

- A. 580      B. 560      C. 650      D. 590      E. 510
10. In the diagram, ABCD is a square with an area of  $81 \text{ cm}^2$ . AE is two thirds of AB, and BG is half of BC. What is the area of HGCF in  $\text{cm}^2$  ?



- A.  $\frac{25}{2}$       B.  $13\frac{1}{2}$       C.  $\frac{40}{3}$       D.  $14\frac{1}{2}$       E.  $12\frac{1}{3}$

## SECTION B

**NB : Show all working and write your final answer in the allocated space.**

11. At a school fundraising day, juices sell at R9, chocolates sell at R3, and buns sell at R5. You have R100 to spend. What is the greatest (maximum) number of these items you can buy if you receive no change, and you buy at least one of each?

12.  $T$  is equal to the sum of :

- integers greater than  $-5$  and less than  $6$ , and
- the first five whole numbers, and
- the first five prime numbers, and
- the first five positive integer perfect squares.

What is the value of  $T$  ?

13. Ten cards are laid down side by side as shown. A positive whole number is written on each card such that the numbers on any three consecutive cards add to 20. The first card is numbered 2 and the ninth card is numbered 8. The other cards are turned over. What is the number on the fifth card?



14. A water tank has two different sized taps, A and B, at the bottom to release the water when required. When the tank is full, it takes 5 hours to empty when only the larger tap A is opened. It similarly takes 20 hours to empty the full tank when only the smaller tap B is opened. How long will it take to empty the full tank if both tap A and tap B are opened together?

15. What is the value of the last digit of  $(2^{2019} + 0^{2019} + 1^{2019} + 9^{2019}) \times 2019$  ?