

PRIMARY SCHOOL  
CHALLENGE 2023

**LEVEL 1 CHALLENGE**  
**GRADE 4 AND 5 ROUND ONE**

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**INSTRUCTIONS**

1. The time allocated for this paper is 1 hour.  
Under no circumstances may extra time be given.
2. This paper consists of 20 multiple choice questions.  
Each question only has one correct answer.
3. Questions 1-15 are each worth 1 mark. Questions 16-20 are each worth 2 marks.
4. Negative marking will not be applied.
5. Calculators (and other calculating devices) and geometry instruments are not allowed.
6. Figures are not drawn to scale.
7. Answer all questions on the answer sheet provided.
8. Circle the letter you have chosen as your answer in pen. Should you wish to change an answer, put a cross over the letter and then circle your new chosen letter.
9. Paper may be used for rough working.

1. What is the value of  $2 \times (2 + 0 - 2 + 3)$  ?

- (A) 3            (B) 0            (C) 6            (D) 14            (E) 2

2. Sam is standing in a queue of pupils, all facing the front. Sam is 5<sup>th</sup> from the front of the queue and 17<sup>th</sup> from the back of the queue. How many pupils are in the queue?

- (A) 22            (B) 19            (C) 18            (D) 21            (E) 20

3. Each of the numbers 3, 4, 6, and 7 may be used only once and placed in the squares in the sum below. What is the largest possible sum?

$$\frac{\square}{\square} + \frac{\square}{\square}$$

- (A)  $3\frac{3}{4}$             (B)  $4\frac{1}{4}$             (C)  $2\frac{1}{2}$             (D) 3            (E)  $3\frac{5}{6}$

4. Five pupils were each thinking of a different 2-digit number. The sum of their five numbers was 64. One of the pupils left, and the sum of the remaining four numbers was 53. What is the biggest possible number one of the original five pupils was thinking about?

- (A) 20            (B) 15            (C) 14            (D) 21            (E) 18

5. A family travel by car on holiday. Every time they cross a bridge, they have to pay a bridge fee. The bridge fees are R5, R7, and R11 depending on the type of bridge crossed. Each type of bridge is crossed at least once, and the family paid a total of R66 in bridge fees by the time they reached their destination. What is the smallest number of bridges they crossed?

- (A) 6            (B) 8            (C) 10            (D) 9            (E) 7

6. In the first round of the Beyond Maths Competition, all questions are multiple choice. There are 5 answers to choose from, A, B, C, D, or E, and only one of these choices is correct. You guess the answer to Question 6. What is the probability that you guessed correctly?

(A)  $\frac{5}{5}$       (B)  $\frac{5}{15}$       (C)  $\frac{2}{5}$       (D)  $\frac{10}{25}$       (E)  $\frac{7}{35}$

7. The average of 23 consecutive odd numbers is 2023. What is the sum of the digits of the smallest number?

(A) 3      (B) 2      (C) 4      (D) 1      (E) 5

8. Eli starts reading a book on Monday. The book has 600 pages and he reads 40 pages that day. He reads every day except on a Wednesday and on a Sunday. From Tuesday onwards, on the days he reads, Eli reads 30 more pages than on the previous day he read.

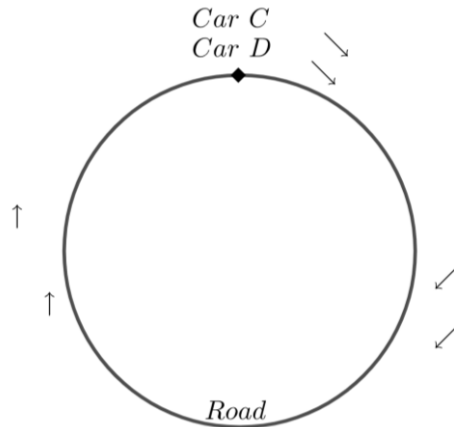
On which day of the week will Eli finish reading the book?

(A) Saturday   (B) Thursday   (C) Monday   (D) Friday   (E) Tuesday

9. All the Grade 4 and Grade 5 pupils at a school wrote a test. The test finished at 11.12 in the morning. If the test was  $1\frac{1}{4}$  hours long, what time in the morning did they start writing the test?

(A) 10.07      (B) 9.55      (C) 10.00      (D) 9.07      (E) 9.57

10. Two cars, *C* and *D*, start travelling together around a circular road. Car *C* completes 4 full trips around the road in 120 minutes. Car *D* completes 3 full trips around the road in 1 hour. After how long will both cars meet again at their starting point for the first time?



- (A) 2 hours            (B) 180 minutes            (C) 1 hour  
 (D) 50 minutes        (E) 1 hour 20 minutes

11. What is the sum of the digits of:  $2023 + 20 + 23 - 2 - 3$  ?

- (A) 14            (B) 20            (C) 9            (D) 10            (E) 13

12. Brian rides his bicycle to school and back every day Monday to Friday. On a Thursday during one week his front tyre was flat when he arrived at school, so his mother picked him and his bicycle up from school and took him home. He fixed the puncture that evening and rode to school and back the following day. The school is  $2\frac{1}{2}$  kilometres from Brian's home. How far did he cycle that week in kilometres?

- (A)  $12\frac{1}{2}$             (B) 20            (C)  $22\frac{1}{2}$             (D) 25            (E)  $15\frac{1}{2}$

13. A 6-sided dice has the numbers 1 – 6 written on its sides. The dice is rolled and, when it is still, the number on top is written down. The dice is rolled again and the number on top is written down as before.

If the two numbers are added together, in how many different ways could the sum of the two numbers be greater than or equal to 10?

- (A) 8            (B) 4            (C) 5            (D) 9            (E) 6

14. How many 4-digit numbers larger than 2023 can be formed using only the digits 2, 0, 2, and 3 without repetition? (That is, each digit may be used only once except for 2 which may be used twice since there are two 2's in 2023)

(A) 7            (B) 8            (C) 5            (D) 6            (E) 9

15. Eight consecutive whole numbers are each divided by 4. The eight remainders are then added together. (Consecutive means one after the other, eg 14, 15, 16, ....)

What is the sum of all these eight remainders?

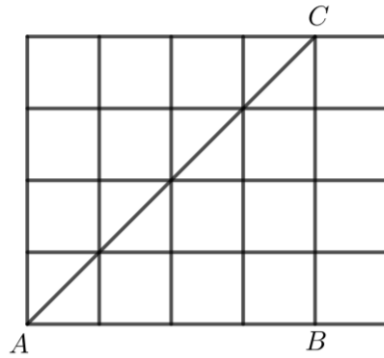
(A) 12            (B) 10            (C) 14            (D) 6            (E) 8

16. A family leave home by car on a holiday. On the first day they travel  $\frac{1}{3}$  of the total distance to their holiday home. On day two they travel  $\frac{2}{3}$  of the remaining distance to their holiday home. On day three they reach their holiday home.

What fraction of the total distance did they travel on day three?

(A)  $\frac{4}{9}$             (B) 0            (C)  $\frac{2}{9}$             (D)  $\frac{1}{6}$             (E)  $\frac{1}{3}$

17. Twenty identical squares, each with sides of 2 form a large rectangle as shown. Line  $AC$  is drawn and then  $C$  and  $B$  are joined, forming triangle  $ABC$ . What is the area of the rectangle excluding triangle  $ABC$  ?

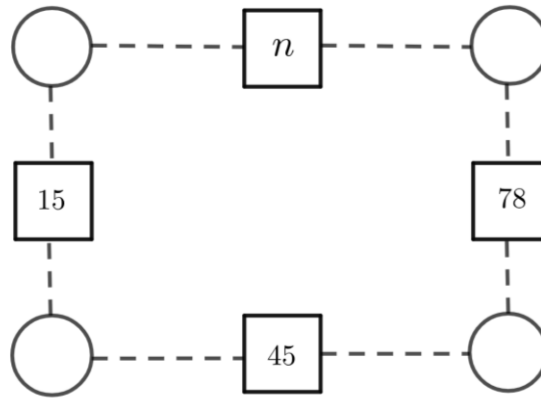


- (A) 24      (B) 48      (C) 40      (D) 32      (E) 52
18. In the sum below, two positive 3-digit numbers  $3nm$  and  $mn3$  are added together to form a 4-digit number  $1n1n$  as shown.  $m$  and  $n$  are different digits  $0 - 9$ . What is the value of  $m - n$  ?

$$\begin{array}{r}
 3 \ n \ m \\
 + \ m \ n \ 3 \\
 \hline
 1 \ n \ 1 \ n
 \end{array}$$

- (A) 2      (B) 6      (C) 3      (D) 5      (E) 7
19. What is the sum of all 3-digit natural numbers which are exactly 12 more than a 2-digit natural number?
- (A) 1155      (B) 1266      (C) 1378      (D) 1045      (E) 1491

20. In the figure below, the number in each square is the product of the natural numbers in the circles on either side of it. The sum of the four numbers in the circles is 45.



What is the value of the sum of the digits of the number  $n$ ?

- (A) 12      (B) 14      (C) 6      (D) 11      (E) 8

\*\*\*\*\* END \*\*\*\*\*