

PRIMARY SCHOOL CHALLENGE 2024

LEVEL 1 CHALLENGE GRADE 4 AND 5 ROUND TWO

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 15 Questions over 3 Sections.**

Section A consists of 5 multiple choice questions. Each question is worth 1 mark. 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.

Section B consists of 5 questions where only an answer must be given. Each question is worth 2 marks. Write only your answer in the allocated space.

Section C consists of 5 questions where full working must be shown in the space provided. These questions are each worth 4 marks, and part marks may be awarded in this section only. Your final answer must be written in the allocated space.
3. Negative marking will not be applied.
4. Calculators (and other calculating devices) and geometry instruments are not allowed.
5. Figures are not necessarily drawn to scale.
6. Answer all questions on the answer sheet provided.
7. Paper may be used for rough working.

SECTION A

1. What is the value of: $\frac{2024}{2+0+2+4}$?

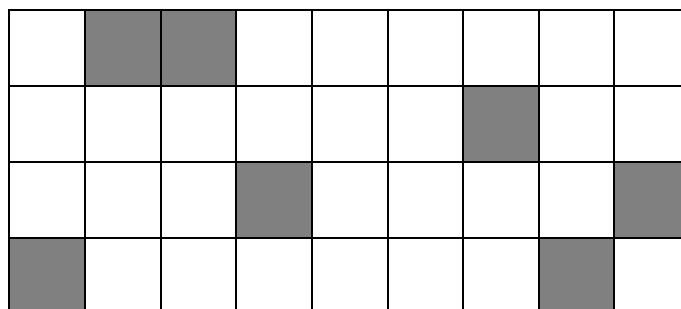
- A. 506 B. 224 C. 1012 D. 253 E. 1

2. Twelve cards each have an *A* written on one side. Eight cards each have a *B* written on one side. The 20 cards are shuffled and randomly laid face down in a row. (The letters *A* and *B* are not visible)

What is the smallest number of cards which need to be turned over such that at least two *A*'s will definitely be showing?

- A. 8 B. 10 C. 2 D. 12 E. 4

3. Some squares in the rectangle below are shaded.



How many more squares need to be shaded such that the number of squares not shaded is one third of the number of shaded squares?

- A. 27 B. 9 C. 20 D. 13 E. 7

4. Which of the whole numbers $a, b, c, d,$ or e is the largest if:

$$a - 4 = b + 1 = c - 6 = d + 4 = e - 7$$

- A. a B. b C. c D. d E. e

5. Nine rectangles are shown below. The sum of the numbers in any three consecutive rectangles is 2024. (Consecutive means side by side)

A	2007	17 - A	A	2007	7	10	2007	B
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What is the value of $A + B$?

- A. 51 B. 1012 C. 17 D. 2024 E. 24

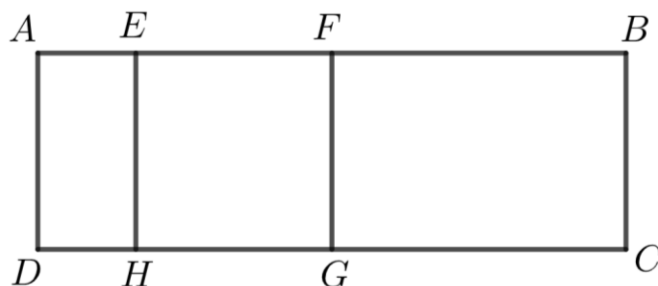
SECTION B

NB: Write only your final answer in the allocated space.

6. In the figure, square $EFGH$ is drawn inside rectangle $ABCD$ as shown. E and F lie on side AB while H and G lie on side CD .

$$AB = 21\text{cm}$$

$$\text{Area of } EFGH = \frac{225}{9} \text{ cm}^2$$



What is the area of $ABCD$ in cm^2 ?

7. In a race, Alan is 43 seconds ahead of David. David is 33 seconds behind Brian. Chad is 23 seconds behind Alan.

What is the time difference in seconds between Brian and Chad?

8. It's Ruth's birthday and her mother has baked her a cake. The number of candles on the cake is equal to Ruth's age. All the candles are lit.
- On her first try Ruth blows out $\frac{1}{3}$ of the candles on the cake.
 - On her second try she blows out $\frac{1}{4}$ of the number of candles originally lit on the cake.
 - On her third try she blows out the rest of the candles still lit.

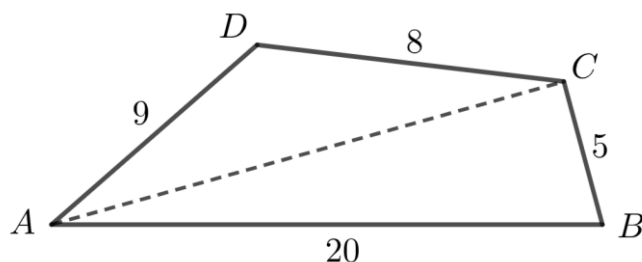
What is the youngest possible age of Ruth?

9. In the calculation below, the same whole number is in each square:

$$\square + \square \div \square \times \square + \square + \square = 36$$

What is the number in the square?

10. Quadrilateral $ABCD$ is shown in the figure. $AB = 20$, $BC = 5$, $CD = 8$, $AD = 9$. The length of AC is a whole number.



What is the whole number length of AC ?

SECTION C

**NB: Show all working and write your final answer in the allocated space.
Part marks may be awarded.**

11. *GRADE* is a 5-digit whole number with different digits *G, R, A, D,* and *E*.

GRADE \div 4 and *GRADE* \div 5 are both whole numbers.

What is the smallest possible 5-digit whole number *GRADE*?

(Show all working)

12. Brent is thinking of a positive 4-digit number.

- The number can be exactly divided by 2.
- The thousand's digit is equal to the unit digit.
- The four digits add up to 10.

How many different 4-digit numbers could Brent have been thinking of?

(Show all working)

13. Sand is poured into a cylindrical cement flower pot. When the pot is $\frac{1}{4}$ full of sand, the pot and sand weigh 30kg. When the pot is $\frac{1}{2}$ full of sand, the pot and sand weigh 40kg.

What is the weight in kg of the flower pot on its own?

(Show all working)

14. Ten grade 5 pupils were given numbers 1 to 10. They then lined up in pairs, one opposite the other, in two rows as shown. So, for example, number 3 was opposite number 8.

1	2	3	4	5
10	9	8	7	6

2024 grade 4 and grade 5 pupils were given numbers 1 to 2024. They then lined up in exactly the same way, that is in pairs opposite each other in two rows.

Which number was opposite number 545?

(Show all working)

15. How many numbers from 1 to 2024 are multiples of 8, 12, and 20?

(Show all working)

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