

# PRIMARY SCHOOL CHALLENGE 2024

## **LEVEL 0 CHALLENGE GRADE 3 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 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.

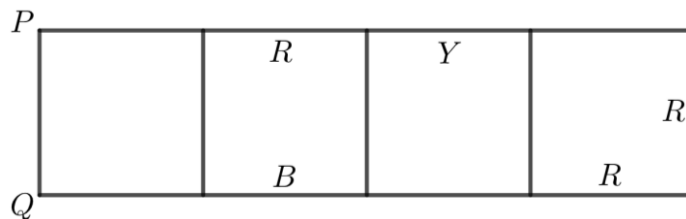
## SECTION A

1. Which of the following numbers is the smallest?

- A. 2204      B. 2420      C. 4022      D. 2024      E. 4220

2. 13 wooden sticks are glued together to make 4 squares as shown below. Three colours, Red (R), Blue (B) and Yellow (Y) are used to paint the sticks.

- Each square has 2 Red sides, a Blue side and a Yellow side.
- Five sticks have already been painted in the colours shown.



What colour could the side  $PQ$  be painted in?

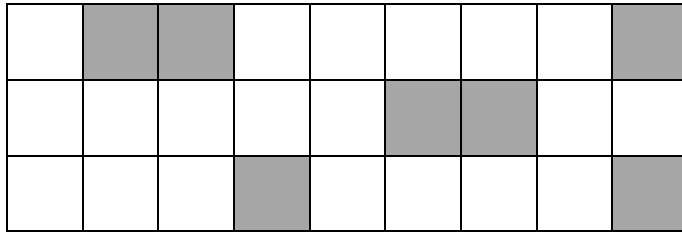
- A. Only Red                      B. Blue or Yellow                      C. Only Blue  
 D. Red or Blue                  E. Red or Yellow

3. 42 children were in a school swimming pool. Half of them climbed out of the water. Then 10 children jumped back into the water.

How many children were now in the water now?

- A. 21      B. 22      C. 31      D. 32      E. 24

4. Some squares are shaded in the rectangle below.



How many more squares need to be shaded such that the number of shaded squares is half the number of unshaded squares?

- A. 9            B. 18            C. 2            D. 5            E. 1
5. Chicken eggs are packed into cardboard boxes. There are 6 eggs in each box. A shop receives 100 cardboard boxes, each full of eggs. A total of 27 eggs were found to be broken. What is the smallest possible number of boxes which contained at least 1 broken egg?

- A. 27            B. 3            C. 10            D. 12            E. 5

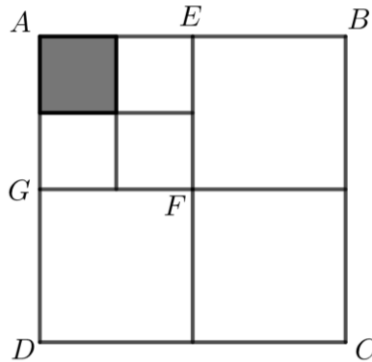
## **SECTION B**

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

6. In a race, Alan is 40 seconds ahead of David. David is 30 seconds behind Brian. Chad is 20 seconds behind Alan. How many seconds is Brian ahead of Chad?

7. Square  $ABCD$  is shown in the figure. The square  $ABCD$  is divided into 4 smaller identical squares. (Identical means exactly the same)  
One of these 4 smaller squares is  $AEFG$  as shown.

Square  $AEFG$  is then divided into 4 identical very small squares.  
One of these very small squares is shaded as shown.



How many of the very small shaded squares fitted side by side will it take to exactly fill the large square  $ABCD$  ?

8. Six cards each have an  $A$  written on one side. Three cards each have a  $B$  written on one side. The 9 cards are mixed up and laid face down in a row without looking. (The letters  $A$  and  $B$  are not visible on any of the cards)  
What is the smallest number of cards which need to be turned over such that at least two  $A$ 's will definitely be showing?

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

$$\square \times \square + \square = 42$$

What is the number in the square?

10. Nelson counted up in 2's from 2. (2 ; 4 ; 6 ... .. )  
Fikile counted down in 3's from 27. (27 ; 24 ; 21 ... .. )  
Starting together, they both start counting out aloud.

What is the first number that they will both say out aloud at the same time?

### **SECTION C**

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

11. It's Julia's 10<sup>th</sup> birthday.  
She has no brothers or sisters.  
She invites 3 of her friends to her home.  
Each of the 3 friends brings along 2 of their friends to Julia's home.

In total, how many children are in Julia's home on her 10<sup>th</sup> birthday?

(Show all working)

12. Brent is thinking of a positive 3-digit number.

- The number can be exactly divided by 2.
- The hundred's digit is the same as the unit digit.
- The three digits add up to 10.

How many different 3-digit numbers could Brent have been thinking of?

(Show all working)

13. A school has an exchange shop.

- 2 pens may be exchanged for 5 pencils
- 7 rulers may be exchanged for 4 pens

Usha takes 21 rulers to school.

How many pencils can she get from the exchange shop if she uses all 21 rulers?

(Show all working)

14. It is 2024 and Jenny has just turned 10. Two of her friends turned 9 earlier in the same year.

What will the sum of their three ages be in 2030 once Jenny has had her birthday in that year?

(Show all working)

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

$GRADE \div 3$  is a whole number. (ie, *GRADE* is exactly divisible by 3)

HINT: If a number is exactly divisible by 3 then the sum of the digits of the number is also exactly divisible by 3.

For example the 5-digit number 60753 is exactly divisible by 3 since its digits,  $6 + 0 + 7 + 5 + 3$  add up to 21 which is divisible by 3.

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

(Show all working)

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