

PRIMARY SCHOOL  
CHALLENGE 2018

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

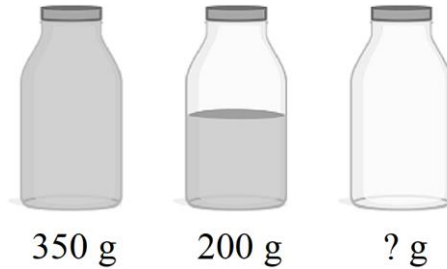
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**INSTRUCTIONS**

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 – 15).  
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**

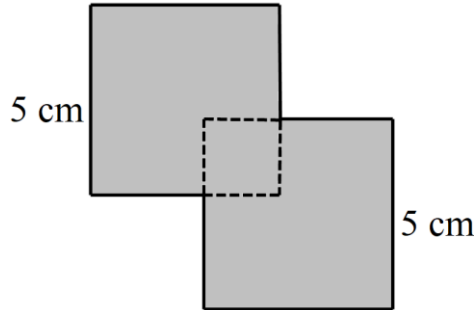
1.



A full bottle of milk weighs 350 grams. When half the milk is drunk, it weighs 200 grams. The weight of the empty bottle is

- (A) 0 g            (B) 50 g            (C) 100 g            (D) 150 g            (E) 175 g

2. Two squares, each with side length 5 cm, overlap as shown. The shape of their overlap is a square, which has an area of  $4 \text{ cm}^2$ . What is the perimeter, in centimetres, of the shaded figure?



- (A) 24            (B) 32            (C) 40            (D) 42            (E) 50

3. A small ink cartridge has enough ink to print 600 pages. Three small cartridges can print as many pages as two medium cartridges. Three medium cartridges can print as many pages as two large cartridges. How many pages can be printed using a large cartridge?

- (A) 1 200            (B) 1 350            (C) 1 800            (D) 2 400            (E) 5 400

4. Simi, Kim, Hagrid and Palesa have their 12<sup>th</sup>, 14<sup>th</sup>, 15<sup>th</sup> and 15<sup>th</sup> birthdays today. In what year will their ages first total 100?

- (A) 2028            (B) 2029            (C) 2030            (D) 2063            (E) 2119

5. The first 9 odd numbers are placed in the magic square so that the sum of the numbers in each row, column and diagonal are equal. Find the value of  $A + E$ .

A	1	B
5	C	13
D	E	3

- (A) 32                      (B) 28                      (C) 26                      (D) 24                      (E) 16
6. Given the long addition sum below, each of the letters represents a different single digit number.

$$\begin{array}{r}
 \phantom{+} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\
 \phantom{+} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\
 + \phantom{0} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\
 \hline
 1 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \phantom{0}
 \end{array}$$

The sum of  $D + O + G + C + A + T$  is

- (A) 30                      (B) 29                      (C) 28                      (D) 27                      (E) 26
7. Twelve people, and no more, can sit evenly spaced around a large square table. Kariem arranges eight of these square tables in a row to make one long rectangular table. What is the largest number of people that can sit evenly spaced around this long table?
- (A) 30                      (B) 24                      (C) 48                      (D) 54                      (E) 36
8. Which of the following will be in the tens place in the product of

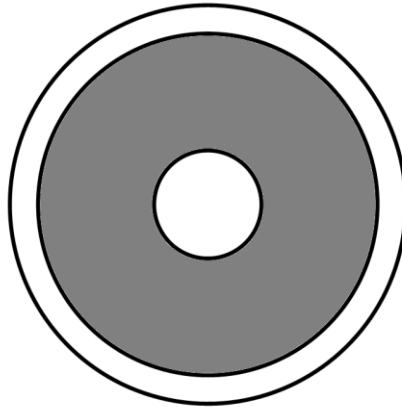
$$1 \times 2 \times 3 \times \dots \times 48 \times 49 \times 50?$$

- (A) 0                      (B) 1                      (C) 2                      (D) 3                      (E) 4

9. A family has seven daughters. Each one after the first born is two years younger than the one born before. If the oldest daughter is three times as old as the youngest daughter, how old is the oldest daughter?

(A) 27                      (B) 24                      (C) 21                      (D) 18                      (E) 15

10. In the diagram, the area of the shaded middle ring is 18 times the area of the smallest circle. The area of the unshaded outer ring is 20 times the area of the smallest circle. What fraction of the area of the largest circle is the area of the smallest circle?



(A)  $\frac{9}{10}$                       (B)  $\frac{1}{3}$                       (C)  $\frac{1}{39}$                       (D)  $\frac{1}{38}$                       (E)  $\frac{1}{2}$

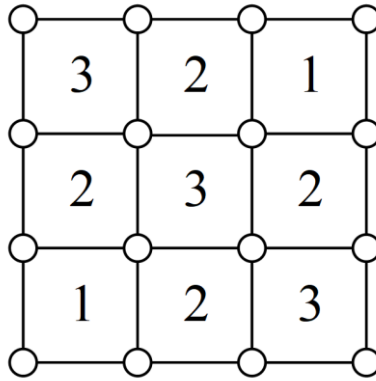
## **SECTION B**

11. I'm thinking of a number.

- It is a two-digit positive integer.
- The sum of its digits is 10.
- Subtracting 72 from the number swaps its two digits.

What is the number?

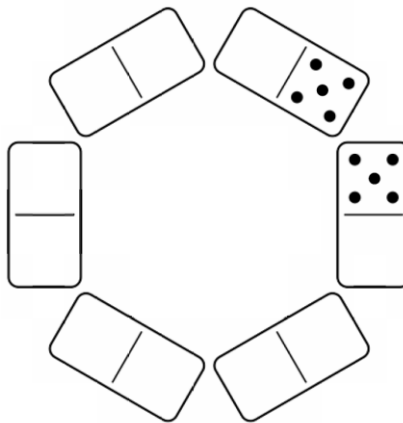
12. Each of the nodes – the small circles – of the squares below may or may not have a bomb. The number in each square indicates the number of bombs planted around that square.



Using the diagram provided in the answer booklet, show where the bombs are planted.

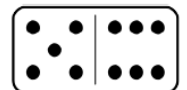
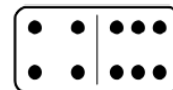
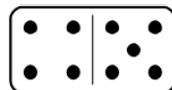
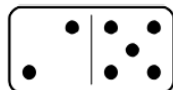
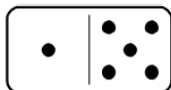
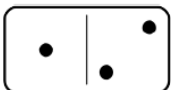
13. Thandi wants to place six dominoes in the hexagonal ring below.

For every pair of dominoes next to each other, the numbers of dots must match. The ring on the right indicates how one adjacent pair match.



In a completed ring, which of the other five dominoes below can he definitely not

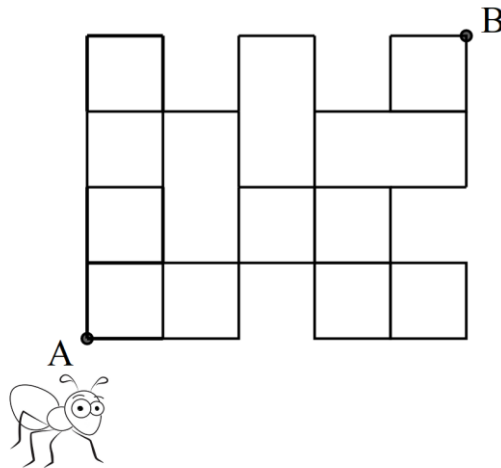
place next to ?



14. An ant is crawling from point A along the grid to point B.

- When it crawls along each small square in the horizontal direction, it takes 9 seconds.
- When it crawls along each small square in the vertical direction, it takes 12 seconds.
- Each time the ant turns to crawl a different direction, it takes 2 seconds for each turn.

What is the least amount of time that it takes the ant to get from point A to point B?



15. I want to fill in the eight circles below using each of the numbers 1, 2, 3, 4, 5, 6, 7, 8 exactly once. Consecutive numbers cannot be placed in circles which are connected by a line segment.

What is the sum of the two numbers in the middle?

