

PRIMARY SCHOOL  
CHALLENGE 2018

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

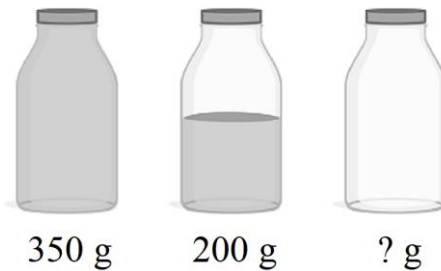
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**INSTRUCTIONS**

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.



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. The city library donated some children's books to a grade 7 class. If each student takes 4 books, there will be 20 books left. If 3 students do not take a book and the rest of the students take 5 books each, there will be no books left. How many books were donated to the class?

- (A) 120            (B) 140            (C) 160            (D) 175            (E) 185

3. Given the long addition sum below, each of the letters represents a different single digit number.

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

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

- (A) 30            (B) 29            (C) 28            (D) 27            (E) 26

4.  $60 \times P = Q^2$

The value of  $P + Q$  is

- (A) 5            (B) 15            (C) 30            (D) 45            (E) 60

5. In Figure A, the jug on the left pan balances the bottle on the right pan.  
 In Figure B, the jug alone balances a mug and plate.  
 In Figure C, three of these plates balance two bottles.



FIGURE A



FIGURE B

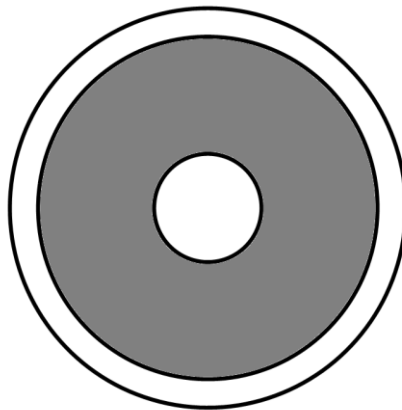


FIGURE C



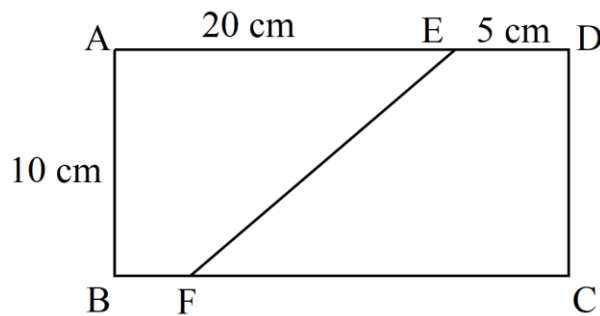
How many mugs will balance a jug?

- (A) 1                      (B) 2                      (C) 3                      (D) 4                      (E) 5
6. 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)  $\frac{1}{2}$
7. How many even 4-digit numbers can be created using only the digits 2018 without repeating any digit in any single number ?
- (A) 6                      (B) 8                      (C) 12                      (D) 14                      (E) 18

8. Three pumpkins are weighed two at a time in all possible ways. The weights of the pairs of pumpkins are 12 kg, 13 kg and 15 kg. How much does the lightest pumpkin weigh?
- (A) 4 kg      (B) 5 kg      (C) 6 kg      (D) 7 kg      (E) 8 kg
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. The rectangle ABCD is shown below. E lies on AD and F lies on BC.



If the area of the figure EDCF is  $\frac{2}{3}$  the area of the figure AEFB, the length of FC is

- (A) 15 cm      (B) 16 cm      (C) 17 cm      (D) 18 cm      (E) 19 cm

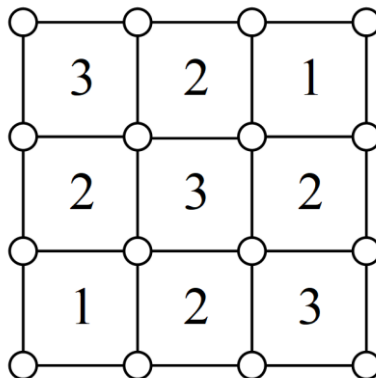
## SECTION B

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.

13.1 My running speed is twice my walking speed.  
I can walk 120 metres in 80 seconds.

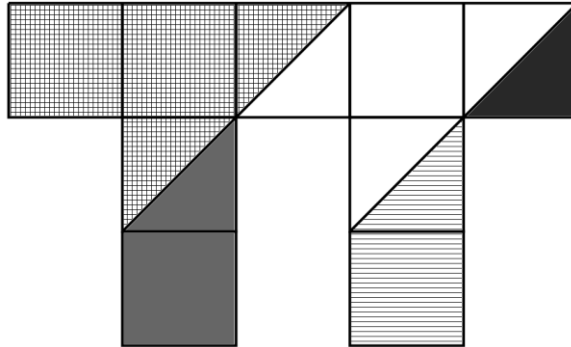
Calculate how long it takes me to run 60 metres.

13.2 Vladimir's running speed is three times his walking speed.  
Vladimir can walk  $2p$  metres in  $p$  seconds.

Calculate how long it takes Vladimir to run 60 metres.

14. The figure PI below has been divided into 5 different pieces.  
Can you rearrange them to form a square?  
The individual pieces can be rotated, reflected and moved.

Use the grid provided in the answer booklet to show how you would rearrange the pieces. Use different shading to show the different pieces clearly.



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?

