

PRIMARY SCHOOL  
CHALLENGE 2017

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

---

**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. Each question is worth one mark.

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. At Flintstone's shop, 9 globs cost less than R10 but 10 globs cost more than R11. How much does 1 glob cost?

- (A) R1,09      (B) R1,11      (C) R1,15      (D) R1,00      (E) R1,05

2. A domino piece is made up of two squares - each square contains either no dot or up to 6 dots. The number of dots in two squares can be equal but (3, 4) and (4, 3) are regarded as the same. How many dots are there in total in a full set of dominoes?

- (A) 126      (B) 252      (C) 216      (D) 294      (E) 168

3. How many factors does 2017 have?

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

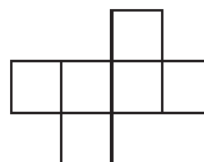
4. In one day, how many times will the minute hand and the hour hand overlap, on an analogue clock?

- (A) 22      (B) 11      (C) 24      (D) 12      (E) 25

5. The sum of 32 consecutive integers is 368. What is the largest integer among them?

- (A) 20      (B) 22      (C) 23      (D) 24      (E) 27

6. If you fold the net given alongside, you will have a cube. How many different nets are there that fold into cubes?



- (A) 5      (B) 7      (C) 10      (D) 11      (E) 12

7. In a numeric sequence, the third and fifth terms are 8 and 24 respectively. What is the 20th term of the sequence?

- (A) 99      (B) 124      (C) 225      (D) 399      (E) 401

8. Find the value of

$$\frac{1}{2} + \left(\frac{1}{3} + \frac{2}{3}\right) + \left(\frac{1}{4} + \frac{2}{4} + \frac{3}{4}\right) + \left(\frac{1}{5} + \frac{2}{5} + \frac{3}{5} + \frac{4}{5}\right) + \dots + \left(\frac{1}{100} + \frac{2}{100} + \dots + \frac{99}{100}\right)$$

- (A) 2 475      (B) 2 500      (C) 2 525      (D) 2 575      (E) 2 725

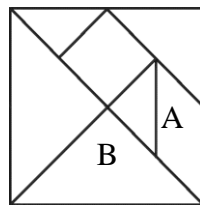
9. What will the unit's digit of  $2^{2017}$  be?

- (A) 8      (B) 6      (C) 4      (D) 2      (E) 0

10. Each letter stands for a different number. What is the value of  $R + S$ ?

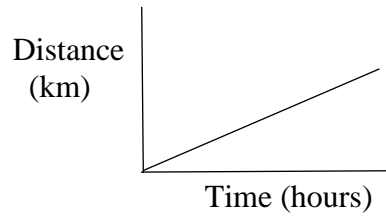
$$\begin{array}{r} 1\ 2\ 5\ R\ S \\ \hline 7\ )\ P\ 7\ Q\ 4\ 1 \end{array}$$

- (A) 7                      (B) 8                      (C) 9                      (D) 10                      (E) 11
11. The product of my age 21 years ago and my age 21 years from now is the cube of a prime number. How old am I?
- (A) 21                      (B) 24                      (C) 27                      (D) 28                      (E) 29
12. How many 4-digit numbers, smaller than 2017, can be formed using the digits 0, 1, 2 and 7 without repetition?
- (A) 24                      (B) 18                      (C) 12                      (D) 10                      (E) 6
13. A ladder is leaning against a wall of a building. The ladder makes a  $57^\circ$  angle with the ground. What angle does it make with the building?
- (A)  $23^\circ$                       (B)  $33^\circ$                       (C)  $57^\circ$                       (D)  $90^\circ$                       (E)  $123^\circ$
14. Given a square of sides 16cm, a second square is drawn inside by joining the midpoints of its sides. A third square is drawn inside the second square in the same way, this process continues until the 10<sup>th</sup> square is drawn. Find the sum of the areas of the ten squares.
- (A)  $160\text{ cm}^2$                       (B)  $256\text{ cm}^2$                       (C)  $341,5\text{ cm}^2$                       (D)  $511,5\text{ cm}^2$                       (E)  $512\text{ cm}^2$
15. In the tangram below, what is the ratio of the size of the parallelogram (shape A) to the large triangle (shape B)?



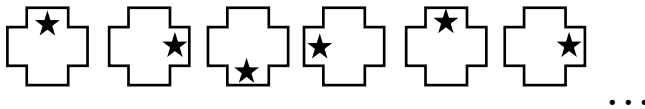
- (A) 1:2                      (B) 2:5                      (C) 1:7                      (D) 2:3                      (E) 1:4
16. Two natural numbers differ by 3. The sum of their squares is 117. Find the larger number.
- (A) 6                      (B) 7                      (C) 8                      (D) 9                      (E) 10

17. The graph relating the distance a car travels to the time taken is a straight line as shown. The graph indicates that the car is:



- (A) stationary      (B) speeding up      (C) slowing down      (D) travelling uphill      (E) travelling at a constant speed

18. There is a pattern to the sequence of figures below.



Which of the following will be the 2017<sup>th</sup> figure in the sequence?

- (A)      (B)      (C)      (D)      (E)

19. Mo, Ro and Bo have less than 20 tokens. Ro has more than Mo and Mo has more than Bo. Ro gives Bo three tokens and Mo gives Bo two. Now they each have the same number. How many tokens did Mo start with?

- (A) 6      (B) 8      (C) 7      (D) 4      (E) 9

20. In a language college, 72% students can speak Chinese, 65% students can speak English and 10% students can speak neither Chinese nor English. Find the percentage of students who can speak both Chinese and English.

- (A) 47%      (B) 7%      (C) 25%      (D) 0%      (E) none of these answers

THE END