BEYOND MATHS

PRIMARY SCHOOL CHALLENGE 2022

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 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. Part marks may be awarded.

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. Which number is exactly in the middle between the numbers 1022 and 2022?

A. 1520 B. 1222 C. 1620 D. 1522 E. 1502

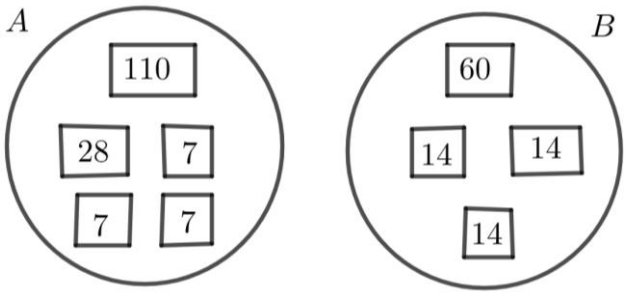
2. Which fraction is bigger than $\frac{6}{7}$.

A. $\frac{59}{70}$ B. $\frac{4}{5}$ C. $\frac{25}{28}$ D. $\frac{18}{21}$ E. $\frac{2}{3}$

3. On Monday apples were selling for R2.00 each and oranges were selling for R1.50 each. Brenda buys five apples and ten oranges on Monday.
On Tuesday the price of apples decreased by R1.00 each and the price of oranges increased by 50 cents each.
If Brenda had bought her fruit on Tuesday instead of Monday, how much more or less would she have paid for five apples and ten oranges?

A. R0.00 B. R7.50 more C. R2.50 less D. R5 more E. R5 less

4. In the diagram below, circle A contains five boxes and circle B contains four boxes. The weight in kilograms of each box is shown.



Some of the boxes are moved from circle *A* to circle *B*, and some of the boxes are moved from circle *B* to circle *A*. Once a box is moved, it is not moved again.

After the moves, the total weight of the boxes in circle A is 71 kilograms less than it was in the diagram above, while the total weight of the boxes in circle B is 71 kilograms more than it was in the diagram above.

What is the smallest possible number of boxes moved?

A. 5 B. 3 C. 7 D. 4 E. 6

5. A number of pupils met on a field. Some of the pupils brought a single dog with them. In total there were 100 legs between the pupils and the dogs. If there were 15 dogs, how many pupils did not bring along a dog?

A. 20 B. 10 C. 8 D. 15 E. 5

6. What is the value of :

$10 - 9 + 10 - 8 + 10 - 7 + 10 - 6 + 10 - 5 + 10 - 4 + 10 - 3 + 10 - 2 + 10 - 1 + 10 - 0$?

A. 35 B. 55 C. 50 D. 45 E. 60

7. A father and his young daughter stand back-to-back on a flat field. The both begin to walk away from one another, each taking 20 paces before stopping. The father then turns around and walks to where his daughter had stopped. He takes 36 paces from where he had stopped to reach his daughter. All paces taken by the father are exactly the same length and all paces taken by his daughter are exactly the same length.
If the length of the daughter's paces were 88cm, how long were her father's paces?

A. 116cm B. 106cm C. 100cm D. 136cm E. 110cm

8. If the pattern below continues forever in the same manner, what is the value of the 2022^{nd} term?

$$17953\ ;\ 31795\ ;\ 53179\ ;\ 95317\ ;\ \ldots\ \ldots\ \ldots\ \ldots$$

A. 53179 B. 31795 C. 17953 D. 79531 E. 95317

9. If $\frac{x}{33} = \frac{8}{11} = \frac{40}{y}$, what is the value of $x + y$?

A. 79 B. 48 C. 65 D. 86 E. 54

10. $\frac{2022}{20} = a + \frac{1}{b}$, where a and b are natural numbers.

What is the value of the sum $(a + b)$?

A. 202 B. 122 C. 100 D. 111 E. 92

SECTION B

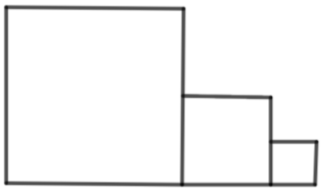
NB : Show all working and write your final answer in the allocated space. Part marks may be awarded.

11. In the multiplication below, $1MATHS$ is a 6-digit number. The letters $M, A, T, H,$ and S stand for different numbers $0 - 9$.

$$1MATHS \times 3 = MATHS1$$

What is the value of the sum $M + A + T + H + S$? (Show all working)

12. Three squares are shown in the figure below. The side of the middle square is twice as big as that of the smallest square, and half as big as the side of the largest square.



If the middle square has an area of $36cm^2$, what is the area of the whole figure? (Show all working)

13. Alan writes down a list of consecutive odd natural numbers, increasing left to right. (Note: "consecutive" means next to one another, for example 33 , 35 , 37, ...) The sum of the 5th and 6th numbers in the list is 28.
Which number is 56th in the list? (Show all working)

14. A large rectangle $ABCD$ is made up of two squares and a smaller rectangle as shown below. The perimeter of $ABCD$ is $62cm$, and the total area the two squares is $98cm^2$.

What is the area of the smaller rectangle? (Show all working)

15. The subtraction of two 2-digit numbers $4G$ and $R5$ is shown below. G and R are different numbers $1-9$.

$$\begin{array}{r} 4\ G \\ -\ R\ 5 \\ \hline \end{array} \leftarrow \ answer$$

How many different <u>positive</u> answers are possible? (Show all working)

********** END **********