Brainiacs Math Olympiad Preliminary Round Sample Exam Paper 3

Category I – grade 3 and 4

Q1.

Calculate: $2025 \times 2 - 2025 \times 0 + 2025 \times 2 - 2025 \times 5$

A) 2025
B) 4050
C) -2025
D) 0

Q2.

The application for the test of the global round of the 1st Brainiacs Mathematics Olympiad is being held on March 15, 2025, a Saturday. Andrew's birthday is 45 days after the application of the test. George is 9 days younger than Andrew. On what day of the week will George's birthday be that year?

A) Monday
B) Tuesday
C) Wednesday
D) Thursday

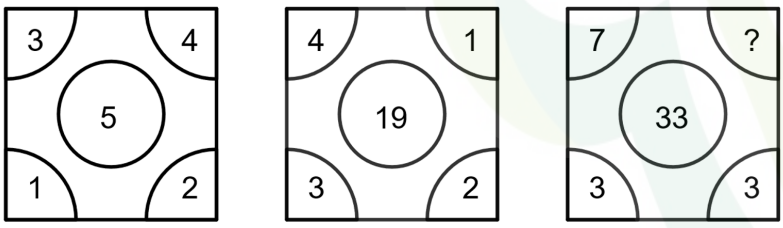
Q3.

If the number $13A$ is prime, then find the sum of the value of the digit A?

A) 3
B) 7
C) 10
D) 17

Q4.

Analyze the images below and find the missing number.



A) 3
B) 9
C) 10
D) 15

Q5.

A soccer player has scored 18 goals in 30 games. If he maintains this average, how many goals will he score in 55 games?

A) 33
B) 36
C) 45
D) 55

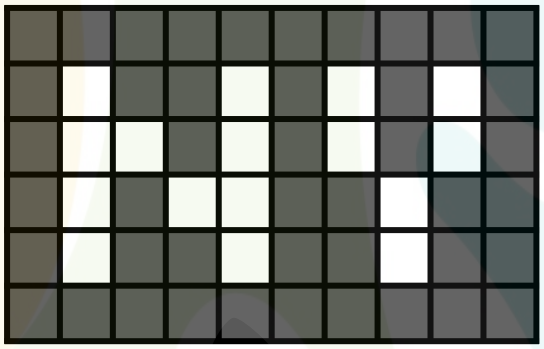
Q6.
Find the value of the following expression.

$$\left(2-\frac{8}{10}\right)-\left(\frac{2}{3}-3\frac{1}{5}\right)\div\frac{2}{3}$$

A) $\frac{11}{10}$
B) $\frac{22}{5}$
C) 5
D) 7

Q7.

What fraction of the figure below is shaded?



A) $\frac{4}{15}$
B) $\frac{10}{15}$
C) $\frac{11}{15}$
D) $\frac{13}{15}$

Q8.
Look at the pattern below and find the missing number.

$0 \rightarrow 1$
$1 \rightarrow 0$
$4 \rightarrow 1$
$7 \rightarrow 0$
$49 \rightarrow 2$
$68 \rightarrow 3$
$9840 \rightarrow \ ?$

A) 2
B) 3
C) 4
D) 5

Q9.

If 1 mile is equivalent to 1.609 kilometers, then $724\ 050$ centimeters are equivalent to how many miles?

A) 4.5
B) 450
C) $4\ 500$
D) $450\ 000$

Q10.

A survey about sports was conducted among the students of a school. In this survey it was found that 120 students play basketball, 140 students play football, 30 students play both basketball and football, and 60 students do not play any of these sports. How many students participated in the survey?

A) 260
B) 290
C) 320
D) 350

Q11.

Find the value of $N + Y + C$.

$$\begin{array}{cccc} & N & Y & C \\ \times & & 1 & 5 \\ \hline 2 & 0 & 2 & 5 \\ \hline \end{array}$$

A) 11
B) 10
C) 9
D) 15

Q12.

How many multiples of 17 are there between 100 and 500?

A) 17
B) 24
C) 29
D) 31

Q13.

Oscar is standing in the middle of a large corridor, in which he can only walk to the right or left, with no obstacle to block his path. Knowing that Oscar has taken 10 steps in random directions, which of the following cannot be the distance, in steps, between his final position and his initial position?

A) 1
B) 2
C) 4
D) 8

Q14.

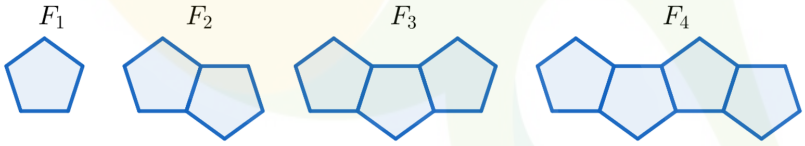
Find the value of C so that the equality below is true.

$$3 \times C + 2 \times C + 9 = 7 \times 7$$

A) 5
B) 6
C) 7
D) 8

Q15.

If the pattern formed by the plane figures F_1, F_2, F_3 and F_4 continues, how many sides will figure F_5 have? Notice that figure F_2 has 9 sides.



A) 17
B) 18
C) 19
D) 21

Q16.

Consider $a\#b = a \times b + a - b$. For example: $3\#2 = 3 \times 2 + 3 - 2 = 7$. So, calculate the value of
$(7\#4) - (4\#7)$.

A) 6

B) 11
C) 22
D) 56

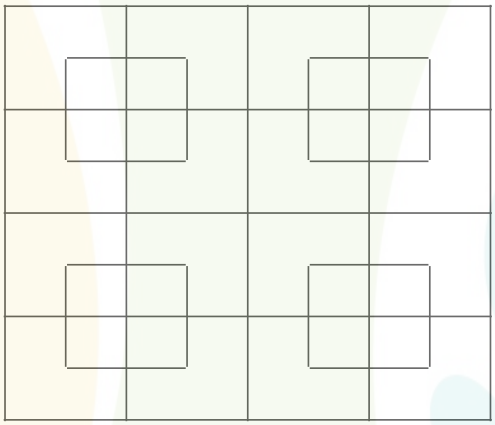
Q17.

Let A, B, C, D, E, and F be natural numbers. It is known that E is greater than B and F, that D is greater than E, and that A is less than D. Based on this, which of the following is a possible relationship between these numbers?

A) $B < A < F < D < E < C$
B) $B < F < E < D < A < C$
C) $B < C < E < A < F < D$
D) $C < B < F < A < E < D$

Q18.

How many squares are there in the picture below?



A) 37
B) 41
C) 50
D) 60

Q19.

Find the next term of the sequence below.

$$1, 1, 3, 5, 9, 17, 31, \ldots$$

a) 43
b) 48
c) 51
d) 57

Q20.

Mike wants to write the letters M, A, T, or H in each of the boxes on the grid below so that each column and each row has four different letters. He has already started filling in the grid by writing the letters indicated in the picture. How many different ways can he finish filling in the grid?

M		T	
	A		H

a) 10

b) 8

c) 6

d) 4