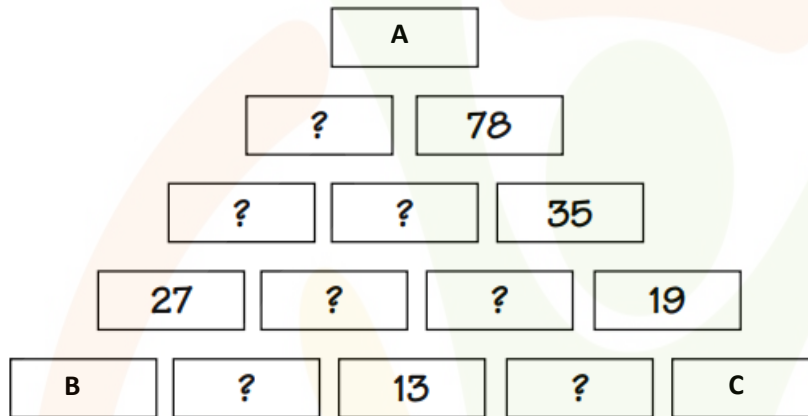# Brainiacs Math Olympiad Preliminary Round Sample Exam Paper 2
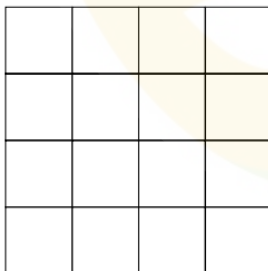
Category II – grades 5 and 6

Q1.

Below is a pyramid of numbers where the number on each brick is the sum of two bricks below it. The numbers given will help you fill in the entire pyramid. What is the value of A + B + C?

	A	
?		78

| ? | ? | 35 |

| 27 | ? | ? | 19 |

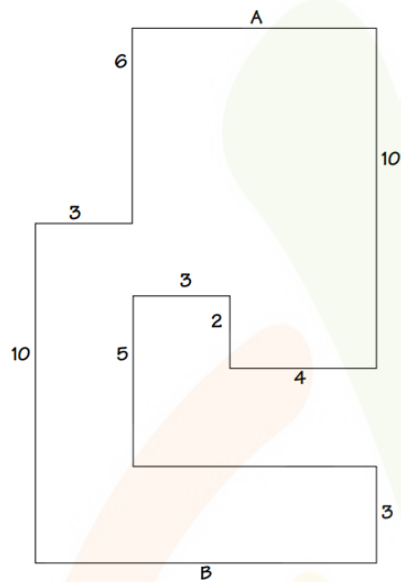| B | ? | 13 | ? | C |

A. 175
B. 187
C. 204
D.215

Q2.

How many squares of any size are in the illustration below?

A. 27
B. 28
C. 29
D. 30

Q3.

In the illustration below, all angles are 90.° Look at the measurements given and use them to figure out the answer of the perimeter of the shape.

A. 62
B. 65
C. 67
D. 70

Q4.

Here is a puzzle called a Number Cross.

```
A   B   C
        D
        E
    F   G   H
```

Each of the eight letters is a different number from 1 to 8.

A + B + C= F + G + H = 12. D + E = 12. C + D + E + F = 26.

D = 5. A, B, and C are even numbers. H = 1. What is the value of the letter G?

A. 2
B. 3
C. 6
D. 8

Q5.

A square piece of paper is folded in half to form a rectangle. This rectangle has a perimeter of 24 cm. Find the area of the original square, in sq cm.

A. 144
B. 100

C. 81

Q6.

The grid below has symbols that contain a whole number value less than 10. Each symbol has its own value. The numbers you see at the end of each row and column are the sums of the figures' values for that row or column. Can you find out the value of the star symbol?

A. 1
B. 5
C. 6

Q7.

If two typists can type two pages in 4 minutes, how many typists will it take to type 10 pages in 20 minutes?

B. 5
C. 10
D. 12

Q8.

What is the next number in the sequence below?

142,857

285,714

428,571

571,428

7 14,285

???,???

A. 785,241
B. 587,421
C. 857,142
D. 875,421

Q9.

If you saw an arithmetic sequence with the consecutive numbers listed below . . .

. . . 20, 24, 28, 32, 36, 40, 44, 48 . . .

. . . which of the following terms would be a possible number in the sequence?

A. 394
B. 838
C. 262
D. 756

Q10.

If $\dfrac{1}{2}$ of a Zeeko is 60% of a Teeko, then a Zeeko divided by a Teeko is:

A. 30
B. 120
C. $\dfrac{5}{6}$
D. 1.2

Q11.

Can you express this fraction in lowest terms?

$$\cfrac{1}{4+\cfrac{1}{4+\cfrac{1}{4+\cfrac{1}{4}}}}$$

A. $\dfrac{72}{305}$

B. $\dfrac{24}{101}$

C. $\dfrac{24}{103}$

D. $\dfrac{1}{3}$
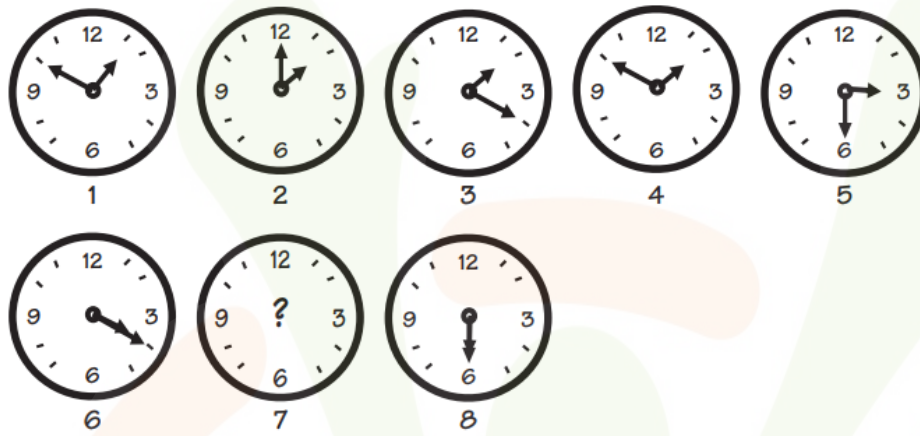
Q12.

What is the angle of the question mark below?

Z

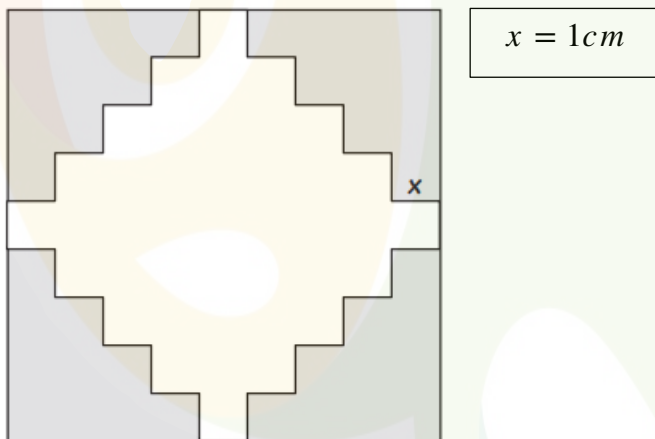? X Y

$X = \dfrac{Y}{5}$
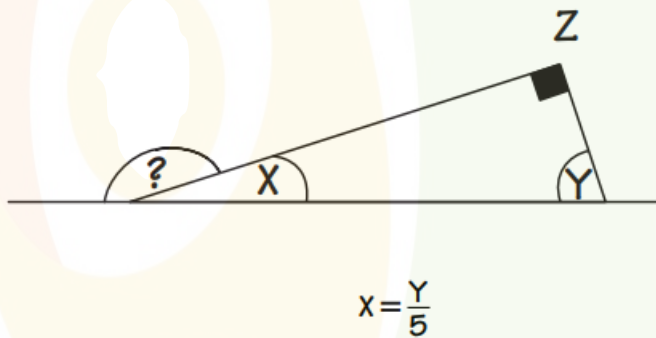
A. 15
B. 75
C. 105
D. 165

Q13.

The times on the clocks below are in a logical sequence of times from 1 to 8. What time should be on the seventh clock?
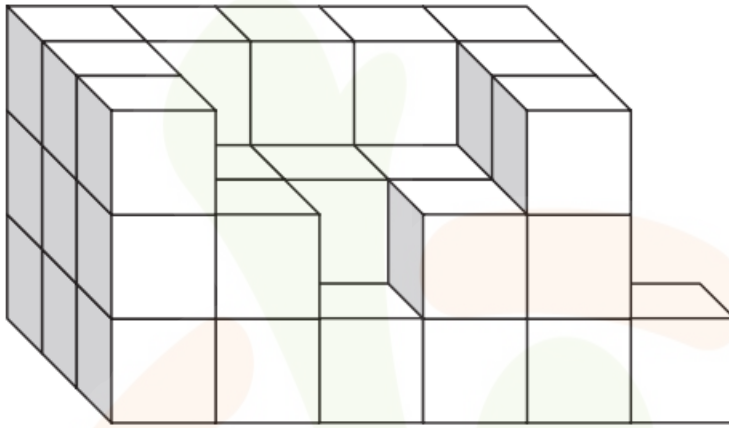
A. 4:50

B. 5:10

C. 5:20

D. 5:30

Q14.

All of the short line segments in this figure are at 90° angles to each other and 1 cm long. What is the total area of the four shaded sections?

$$x = 1cm$$

A. 40

B.52

C. 64

D. 81

Q15.

How many blocks are in the illustration below? Consider that all rows and columns run to completion unless you actually see them end.

A. 37
B.38
C. 39
D. 41

Q16.

A palindromic number is a number that reads the same forward and backward, such as 646. How many palindromic numbers are there between 10 and 1000?

A. 98
B. 99
C. 108
D. 109

Q17.

Marty has 6 more candies than Jack has. After he gives 10 candies to Jack, how many more candies will Jack have than Marty?

A. 4
B.10
C. 12
D. 14

Q18.

A car needs 1 minute 30 seconds to travel a distance of 1 km. At this rate, how many km will the car travel in 1 hour?

A. 52
B. 46
C. 40
D. 39

Q19.

The area of a square is 36 square centimeters. A rectangle has the same perimeter as the square. The length of the rectangle is twice its width. What is the area of the rectangle in square cm?

A. 18
B. 32
C. 50
D. 72

Q20.

Frank read nine consecutive pages from a certain book. The sum of the page numbers he read is 378. What is the page number of the middle page he read?

A. 52
B. 53
C. 54
D. 55