Brainiacs Math Olympiad Preliminary Round Sample Exam Paper 3

Category II – grade 5 and 6

Q1.

Two chocolates and three lollipops weigh 150 grams. One chocolate and five lollipops weigh 145 grams. How much do one chocolate and one lollipop weigh in grams?

A) 50
B) 55
C) 60
D) 65

Q2.

Beatrice's garden produced more fruit than she needed, so she decided to sell some boxes of fruit. In all, 60 oranges and 75 apples were left over. Being an organized girl, Beatrice has decided that the oranges will be distributed equally among the boxes, just like the apples. Since she wants to sell as many boxes as possible, find the total amount of fruit that should be placed in each box.

A) 15
B) 9
C) 5
D) 4

Q3.

Alex the astronaut saved $5 in January, $10 in February, $15 in March, and so on. His goal was to save a total of $765 to buy a new pair of space boots. In which month did Alex reach his goal?

A) January
B) March
C) May
D) July

Q4.

Since it is Sheldon's birthday, his mother gave him a few dollars as a present. He spent $\frac{1}{3}$ of that money buying comic books, spent another $20 on some candy, and realized that he still had 40% of the initial amount he received. What was the amount given by Sheldon's mother?

A) $\$ 60$
B) $\$ 75$
C) $\$ 80$
D) $\$ 90$

Q5.

A parallelepiped is made up of several identical cubes. The breadth, length and depth of this parallelepiped are 9, 8 and 13 cubes respectively. What is the sum of the digits of the number of visible cubes in this parallelepiped?

A) 12
B) 15
C) 17
D) 18

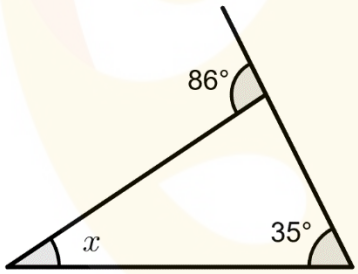
Q6.

Which of the expressions below does not have the same value as $\frac{21}{8}$?

A) $2\frac{5}{8}$
B) $\frac{11}{4}+\frac{10}{4}$
C) $\frac{3}{2}\div\frac{4}{7}$
D) $\frac{21+21}{8+8}$

Q7.

Look at the image below, in which one side of the triangle has been lengthened. Based on the information in the image, find the value of x.



A) $45°$
B) $51°$
C) $86°$
D) $121°$

Q8.

What percentage of a week equals 21 hours?

A) 0.25%
B) 1.25%
C) 2.5%
D) 12.5%

Q9.

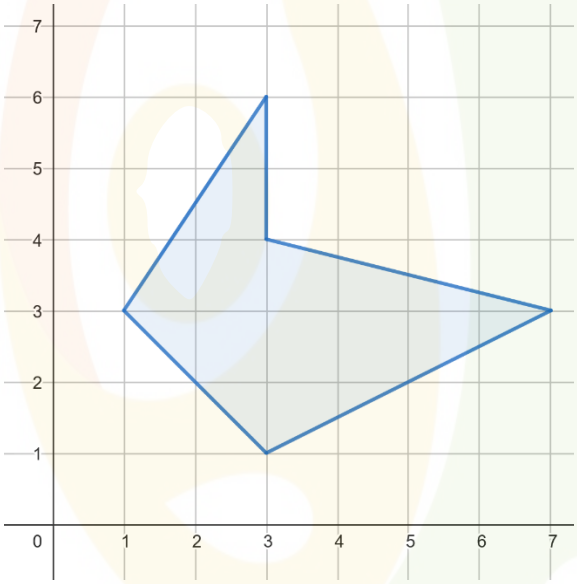
The seven-digit number $56AB359$ is a multiple of 99. Find the value of $B-A$.

A) 3
B) 4
C) 5
D) 6

Q10.
Daniel is playing the " Primes Challenge". In this game, he must speak aloud the natural numbers, in ascending order, starting with 1. However, this game has a peculiar rule: he cannot speak prime numbers and must clap his hands on their turn. If Daniel just clapped his hands for the 25th time, how many multiples of 7 did he utter out loud?

A) 10
B) 11
C) 12
D) 13

Q11.
What is the area of the polygon below?



A) 11
B) 16
C) 22
D) 27

Q12.
Three men build 5 walls in 2 days. How many men are needed to build 90 walls in 12 days?

A) 9
B) 12
C) 15
D) 24

Q13.
The ratio of girls to boys in a class is 3:2, respectively. There are 35 students in this class. How many boys are there in this class?

A) 8
B) 14
C) 24
D) 30

Q14.
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

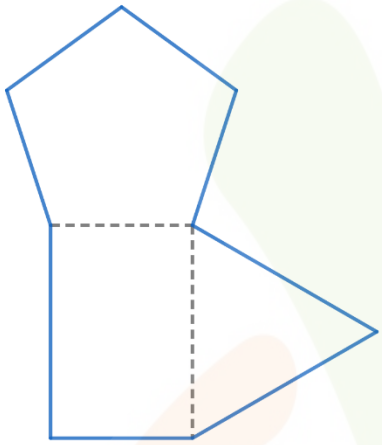
A) 1
B) 2
C) 4
D) 8

Q15.
Calculate:

$$\frac{2025^4 - 2024^4}{2025^2 + 2024^2}$$

A) 2 024
B) 2 025
C) 4 043
D) 4 049

Q16.
The picture below is made up of a rectangle, an equilateral triangle, and a regular pentagon. Knowing that the perimeter of the figure is 22 meters and that all the measurements of the sides, in meters, are whole numbers, what is the area of the rectangle in square decimeters? Notice that all sides of a regular polygon are the same size.



a) 600
b) 700
c) 800
d) 900

Q17.
Ann will take a test with 25 multiple-choice questions. The scoring of the test works as follows: all students start with 25 bonus points, get 4 points for a correct answer, lose 1 point for an incorrect answer, and get 0 points for an answer left blank. If Ann had a score of 94, how many questions did she leave blank?

a) 1
b) 2
c) 3
d) 4

Q18.
In the diagram below, different letters represent different digits. Therefore, find the value of $N + Y + C$.

$$\begin{array}{cccc} & N & N \\ & Y & Y \\ + & C & C \\ \hline N & Y & C \end{array}$$

a) 11
b) 15
c) 17
d) 18

Q19.
Beatrice studies at a school where lessons have a standard duration of 45 minutes. If she attends 6 classes a day, 5 days a week, how many hours does Beatrice spend taking classes for 2 weeks?

a) 42
b) 45
c) C.49
d) D.52

Q20.
Robert forgot to pay a bill, and when he remembered, he found that he would have to pay 7% interest on the original amount. Knowing that Robert paid a total of $ 8,025, what was the initial amount of his bill?

a) 8586.75
b) 7500
c) 7463.25
d) 7200