Question 1

Which of the following numbers is the largest?

$a = (1 \cdot 2) \cdot (2{,}011 \cdot 2{,}012)$

$b = (1 + 2) \cdot (2{,}011 \cdot 2{,}012)$

$c = (1 \cdot 2) \cdot (2{,}011 + 2{,}012)$

$d = (1 + 2) + (2{,}011 \cdot 2{,}012)$

A a

B b

C c

D d

Question 2

David plays football every weekday, and goes to the gym on both Saturday and Sunday. Today, his sports activity was different from the day before yesterday. The number of days in a week that fit this description is:

A 0

B 2

C 3

D 4

Question 3

The number of all **natural** numbers that satisfy the equation

$$(x-\pi)\times(2x+1)\times(7-x)\times\left(x+\sqrt{2}\right)=0$$

is:

A 0

B 1

C 2

D 3

Question 4

A rectangle is divided by one axial cut into two rectangles, each with a perimeter of 140 cm. By another axial cut, it is divided into two rectangles, each with a perimeter of 100 cm. The perimeter of the original rectangle is:

A 180 cm

B 160 cm

C 140 cm

D 120 cm

Question 5

In a certain country, the price of a product increased by 100,000% during the last year. Compared to the original price, the new price was:

A 101 times higher

B 999 times higher

C 1,000 times higher

D 1,001 times higher

Question 6

A rectangular cuboid was painted red and then cut parallel to its faces into several identical small cubes. We know that exactly 13 of the resulting small cubes have **none** of their faces painted. The number of small cubes that have exactly two faces painted is:

A 13

B 52

C 54

D 60

Question 7

The difference between the squares of two consecutive natural numbers is 2,011. The sum of these two numbers is:

A 144

B 512

C 2,011

D Such numbers do not exist.

Question 8

A 5-character password is created using digits and lowercase letters of the international alphabet (which has 26 letters in total). Any character can be used in any position, and characters can be repeated. The maximum number of all possible passwords that can be created this way is:

A 26^5

B 35^5

C 36^5

D 5^{35}