



## Autumn 2018./2019.

SCHOOL	
TEAM NUMBER	
CATEGORY	<b>D, 6th year</b>
COMMISSIONER	

	Student's name and surname	Year	Mentor's name and surname
1.			
2.			

### ANSWERS:

6th year					
6.1.		6.4.		6.8.	
6.2.		6.5.		6.9.	
6.3.		6.6.		6.10.	
		6.7.		6.11.	
				6.12.	
				6.13.	
				6.14.	
				6.15.	

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**CORRECT ANSWER : 10 pts****ANSWER „E“ : 0 pts****FALSE ANSWER: -2 pts**

6.1. World champion Tin Srbić practises every day, except on Sundays, from 7:15 am to 9:45 am, and then again from 4:45 pm to 7 pm. How much time does he spend training every week?



<b>A.</b> 18 hours 45 minutes	<b>B.</b> 22 hours 30 minutes	<b>C.</b> 23 hours 45 minutes	<b>D.</b> 28 hours 30 minutes	<b>E.</b> We don't want to answer
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6.2. Domino tiles are small rectangular tiles split into two squares. These squares can be empty or have one to six dots. How many different domino tiles exist with a square that has five dots?



<b>A.</b> 56	<b>B.</b> 45	<b>C.</b> 35	<b>D.</b> Less than 20	<b>E.</b> We don't want to answer
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6.3. Which of the given numbers is the least?

<b>A.</b> 1.1203	<b>B.</b> 1.203	<b>C.</b> 1.56	<b>D.</b> 1.11339	<b>E.</b> We don't want to answer
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**CORRECT ANSWER: 20 pts****ANSWER „E“ : 0 pts****FALSE ANSWER: -4 pts**

6.4. Jacob has imagined a number. He subtracted 0.09 from it, then he doubled it. He increased the result by 3.5, and then he halved it. What's the initial number he imagined, if the final result is 6?

<b>A.</b> 0.16	<b>B.</b> 4.34	<b>C.</b> 5.15	<b>D.</b> 12	<b>E.</b> We don't want to answer
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6.5. How many divisors, in the set of natural numbers, does the number 96 have?

<b>A.</b> 13	<b>B.</b> 12	<b>C.</b> 11	<b>D.</b> 10	<b>E.</b> We don't want to answer
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6.6. Footballers Luke, Mario, John and Dominic are shooting penalties. Luke scored 6 goals out of 10 shots, Mario scored 7 goals out of 11 shots, John scored 9 goals out of 12 shots, and Dominic scored 10 goals out of 14 shots.

Which one of them was the most successful?

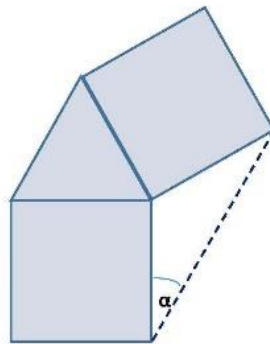
A. Luke	B. Mario	C. John	D. Dominic	E. We don't want to answer
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6.7. A square is divided by three parallel lines into four different rectangles. If the sum of perimeters of all rectangles is 150 cm, what is the area of the square?

A. 156.25 cm <sup>2</sup>	B. 60 cm <sup>2</sup>	C. 225 cm <sup>2</sup>	D. Can't be determined	E. We don't want to answer
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<b>CORRECT ANSWER: 30 pts</b>	<b>ANSWER „E“ : 0 pts</b>	<b>FALSE ANSWER: -6 pts</b>
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6.8. In the picture, an equilateral triangle and two squares are shaded. What is the measure of the angle  $\alpha$ ?



A. 20°	B. 45°	C. 55°	D. 30°	E. We don't want to answer
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6.9. Determine the least four digit number divisible by 15, 20 and 24. Subtract 987 from that number. What is the product of the digits of that number?

A. 36	B. 0	C. 27	D. None of the above	E. We don't want to answer
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6.10. John, Jack and Peter collected 210 stickers in total. One day, John decided to keep one third of his stickers, and share the rest of his stickers equally between Jack and Peter. Jack decided to return 20 stickers to John, and gave Peter 15 of his stickers. After all of that, all three of them had the same number of stickers. How many stickers did Jack and Peter have together at the beginning of that day?

A. 80	B. 70	C. 60	D. Can't be determined	E. We don't want to answer
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6.11. If the remainder, when dividing a natural number  $n$  by 31, equals 19, what is the remainder when dividing the number  $n + 199$  by 31?

<b>A.</b> 22	<b>B.</b> 1	<b>C.</b> 13	<b>D.</b> None of the above	<b>E.</b> We don't want to answer
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6.12. The length of one side of a rectangle is double the length of the other. If the longer side is increased by 4 cm, and the shorter side is increased by 5 cm, the area of the new rectangle will be  $90 \text{ cm}^2$  greater than the area of the initial rectangle. What is the difference between the longer and shorter side in the new rectangle?

<b>A.</b> 5 cm	<b>B.</b> 4 cm	<b>C.</b> 3.5 cm	<b>D.</b> Can't be determined	<b>E.</b> We don't want to answer
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6.13. How many natural numbers less than 100 have exactly three factors?

<b>A.</b> 0	<b>B.</b> 3	<b>C.</b> 4	<b>D.</b> 5	<b>E.</b> We don't want to answer
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6.14. Upon arrival to the hotel, 21 pupils needed to be placed into double and triple rooms. In how many different ways can they rent the rooms?

<b>A.</b> 1	<b>B.</b> 3	<b>C.</b> 2	<b>D.</b> 4	<b>E.</b> We don't want to answer
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6.15. In how many ways can we fill in a table with 3 rows and 3 columns with natural numbers, so that the sum in each row and each column is equal to 5?

<b>A.</b> 6	<b>B.</b> 12	<b>C.</b> 21	<b>D.</b> None of the above	<b>E.</b> We don't want to answer
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