Autumn Round 2019./2020.

SCHOOL	
TEAM NUMBER	
CATEGORY	**Year 7**
COMPETITION COMISSIONER	

no.	FIRST AND LAST NAME OF PARTICIPANT	YEAR	FIRST AND LAST NAME OF MENTOR
1.			
2.			

ANSWERS:

Year 7					
7.1.		7.4.		7.8.	
7.2.		7.5.		7.9.	
7.3.		7.6.		7.10.	
		7.7.		7.11.	
				7.12.	
				7.13.	
				7.14.	
				7.15.	

I ♥ MATematika

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| CORRECT ANSWER: 10 POINTS	ANSWER „E": 0 POINTS	ELSE: –2 POINTS

7.1. The sum of the numerator and the denominator of the irreducible fraction x which is the solution of the equation $2-\dfrac{x+1}{3}=\dfrac{x}{5}$ is:

A.	B.	C.	D.	E. We do not wish to answer
43	33	39	32	

7.2. Ivana labelled the number of chapters she read each day on a graph (Pon=Monday, Uto=Tuesday, …). How many chapters does she have left for the weekend if the book has a total of 16 chapters?
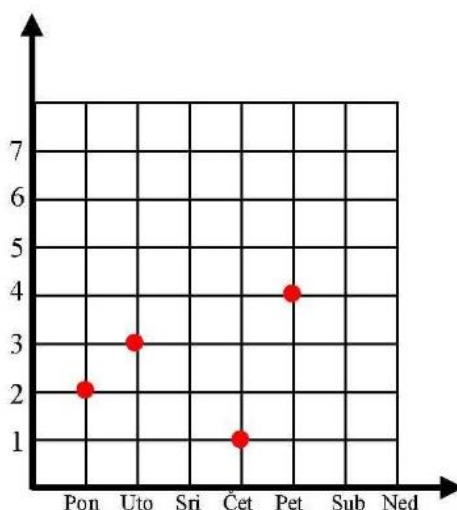
A.	B.	C.	D.	E. We do not wish to answer
4	7	5	6	

7.3. By how much is five wholes and fifteen hundreds greater than two wholes and thirty-five thousandths?

A.	B.	C.	D.	E. We do not wish to answer
2.115	3.8	2.8	3.115	

CORRECT ANSWER: 20 POINTS	ANSWER „E": 0 POINTS	ELSE: –4 POINTS

7.4. Erik thought of a number. He added 13 to it, then he increased the sum 4 times, and then he decreased the product by 11. The number he got was 5 times less than 12345. Which digit is in the ones place of the number that Erik thought of?

A.	B.	C.	D. None of the aforementioned	E. We do not wish to answer
7	8	2		

7.5. If $a \text{☀} b = (a + b) : (a - b)$, how much is $(7 \text{☀} 2) \cdot (6 \text{☀} 4)$?

A.	B.	C.	D. It cannot be determined	E. We do not wish to answer
45/4	9/25	9		

7.6. Three lines in a plane intersect in one point and form 6 angles. The size of the smallest of these angles is 34º and it is three times less than the size of the angle next to it. What is the total size of the other four angles?

A.	B.	C.	D. None of the aforementioned	E. We do not wish to answer
224º	258º	214º		

7.7. How many prime numbers are divisible only by one-digit numbers?

A.	B.	C.	D. None of the aforementioned	E. We do not wish to answer
5	4	0		

CORRECT ANSWER: 30 POINTS	ANSWER „E": 0 POINTS	ELSE: –6 POINTS

7.8. Rectangle *ABCD* is given and its side lengths are 2 cm and 3 cm. Points *A, B* and *C* are also vertices of a trapezium with an area of 18 cm², such that one of its bases is a side of the rectangle. Draw all the trapeziums with the given property and notice their longest side. What is the sum of all the longest sides of all the trapeziums that we get in such a way?

A.	B.	C.	D. It cannot be determined	E. We do not wish to answer
35 cm	25 cm	50 cm		

7.9. Draw a square *ABCD* and its diagonals. Reflect triangle *ABD* about the leg $\overline{AB}$ and draw its image *ABD'*, and reflect triangle *ABC* about the leg $\overline{AB}$ and draw its image *ABC'*. How many more isosceles triangles are there on the image than parallelograms?

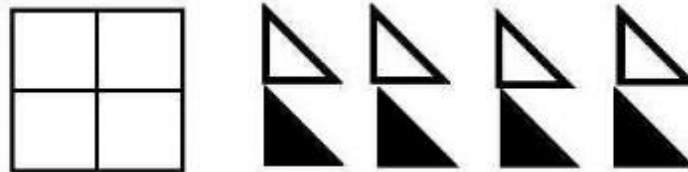| A.	B.	C.	D. It cannot be determined	E. We do not wish to answer
15	13	11		

7.10. Hansel and Gretel want to eat all the candy off of the witch's house. If Hansel eats by himself, he needs 12 days to eat them all, and if Gretel eats by herself, she needs 14 days. On the first three days they ate the candy together, and then Gretel got sick, so the rest of the candy was eaten by Hansel. How many days at least did Hansel and Gretel take to eat all the candy?

A.	B.	C.	D.	E. We do not wish to answer
6	7	9	10	

7.11. A three-digit number x has a remainder 1 when divided by 5, 6, and 9. What is the sum of all numbers x with that property?

A.	B.	C.	D. It cannot be detemined	E. We do not wish to answer
5860	4059	4869		

7.12. On the floor of the hall there is a mosaic in the shape of a square divided into 4 square pieces as shown. The mosaic can be formed by using exactly 8 tiles in the shape of an isosceles right-angled triangle, 4 of them white and 4 black. If each square piece of the mosaic has to be formed from 1 black and 1 white tile, in how many different ways can you make the mosaic?

A.	B.	C.	D. It cannot be determined	E. We do not wish to answer
16	256	64		

7.13. How many different numbers a exist that are not prime and for which $\text{LCM}(a, 48) = 48$?

A.	B.	C.	D. None of the aforementioned	E. We do not wish to answer
8	7	6		

7.14. Four girls (Nina, Mia, Julia and Tihana) and four boys (Jakov, Dario, Krešo and Robin) stand in alternating order (girls between boys) in a circle and hold hands. Jakov is next to Nina and not next to Mia. Opposite Nina is Julia next to whom is Dario. Dario is not opposite Jakov. Which of the following statements is certainly true?

A.	B.	C.	D.	E. We do not wish to answer
Krešo is next to Nina	Krešo is next to Mia	Krešo is next to Julia	Krešo is next to Tihana	

7.15. The "Slatkač" ice cream shop offers 12 different ice cream flavours. George wishes to eat an ice cream with 2 scoops of different flavours. How many different combinations can he choose?

A.	B.	C.	D.	E. We do not wish to answer
72	132	66	144	