



Spring Round 2019./2020.

SCHOOL	
TEAM NUMBER	
CATEGORY	Year 7
COMPETITION COMMISSIONER	

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

www.matzelcic.com.hr

Author: Maja Zelčić, mathematics professor
 Translator: Sofija Čubrić, mag. educ. math. et inf.

Revision: Sanja Stilinović, mathematics professor
 Tamara Nemeth, mathematics professor

CORRECT ANSWER: 10 POINTS**ANSWER „E“: 0 POINTS****ELSE: -2 POINTS**

7.1. Marta and Ana are waiting in line to buy tickets. Marta arrived before Ana, so now there are 15 people standing in line ahead of Marta, and there are 2 people between Ana and Marta. If there are 10 people behind Ana, how many people are there waiting in line?

A. 27	B. 28	C. 29	D. 30	E. We do not wish to answer.
-----------------	-----------------	-----------------	-----------------	-------------------------------------

7.2. Grandma Mary and her granddaughter Jan are peeling potatoes and placing them in a bowl. Grandma places 12 potatoes every 5 minutes, and her granddaughter Jan places 5 peeled potatoes every 3 minutes. After how much time will there be at least 40 but not more than 45 potatoes in the bowl?

A. 10 minutes	B. 12 minutes	C. 15 minutes	D. 18 minutes	E. We do not wish to answer.
-------------------------	-------------------------	-------------------------	-------------------------	-------------------------------------

7.3. An equilateral triangle is intersected by segments that are parallel to its sides. If the area of the big equilateral triangle shown on the image is 18 cm^2 , what is the sum of the areas of all the triangles on the image?



A. 48 cm^2	B. 60 cm^2	C. 36 cm^2	D. None of the aforementioned	E. We do not wish to answer.
--------------------------------	--------------------------------	--------------------------------	---	-------------------------------------

CORRECT ANSWER: 10 POINTS**ANSWER „E“: 0 POINTS****ELSE: -2 POINTS**

7.4. What is the sum of all whole numbers n , such that the fraction $\frac{24}{n}$ is equivalent to a whole number?

A. 60	B. 36	C. 54	D. 0	E. We do not wish to answer.
-----------------	-----------------	-----------------	----------------	-------------------------------------

7.5. Which of the given sizes can be found in the triangle ABC, if the first row of the answers contains the lengths of the sides of the triangle: $a = |BC|$, $b = |CA|$, $c = |AB|$, and the second row contains the angle sizes: $\alpha = |\sphericalangle CAB|$, $\beta = |\sphericalangle ABC|$, $\gamma = |\sphericalangle BCA|$?

A. 2, 2, c 35°, 35°, 100°	B. 2, 2, c 35°, 35°, 110°	C. a, a, 2a 65°, 65°, 70°	D. 3, 3, c 35°, 45°, 100°	E. We do not wish to answer.
--	--	--	--	-------------------------------------

7.6. Anita, Bruna and Dubravka collected paper for recycling and they earned 259,00 kn. They wish to divide the money so that the ratio of Anita's and Dubravka's share is 2 : 3, and the ratio of Dubravka's and Bruna's share is 5 : 4. By how many kuna will Bruna's share be greater than Anita's share?

A. 21	B. 14	C. 7	D. None of the aforementioned	E. We do not wish to answer.
-----------------	-----------------	----------------	--	-------------------------------------

7.7. Ana wants to draw all scalene triangles with the perimeter equal to 15 cm, and its lengths of sides in centimetres equal to natural numbers. How many such triangles are there?

A. 3	B. 5	C. 8	D. 12	E. We do not wish to answer.
----------------	----------------	----------------	-----------------	-------------------------------------

CORRECT ANSWER: 30 POINTS

ANSWER „E“: 0 POINTS

ELSE: -6 POINTS

7.8. Janica and Ivica are building a tower out of cubes. If Janica built the tower herself, it would take 3 hours. If the tower was built by Ivica, he would build it in 2 hours. Their little brother Jurica loves to dismantle the cubes, and he can dismantle the whole tower in 5 hours. While Janica and Ivica are building, little Jurica is dismantling at the same time. In how much time will the tower be built?

A. 1 h 35 min	B. 1 h 22 min	C. 1 h 33 min	D. 1 h 58 min	E. We do not wish to answer.
-------------------------	-------------------------	-------------------------	-------------------------	-------------------------------------

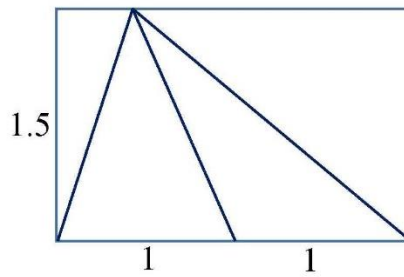
7.9. How many factors does the number 2000 have?

A. 17	B. 18	C. 19	D. 20	E. We do not wish to answer.
-----------------	-----------------	-----------------	-----------------	-------------------------------------

7.10. Dino plays football every second day. Damir plays football every third day. Dubravko plays every sixth day and Donat once a week. How many times a year will the four of them play on the same day at the football pitch?

A. 6	B. 7	C. 8	D. 9	E. We do not wish to answer.
----------------	----------------	----------------	----------------	-------------------------------------

7.11. What is the sum of the areas of all the triangles on the image?



A. 6	B. 3	C. 4.5	D. It cannot be determined.	E. We do not wish to answer.
----------------	----------------	------------------	------------------------------------	-------------------------------------

7.12. How many three-digit numbers are divisible by both 4 and 6?

A. 73	B. 74	C. 75	D. 76	E. We do not wish to answer.
-----------------	-----------------	-----------------	-----------------	-------------------------------------

7.13. An isosceles triangle ABC with the angle of size 40° opposite the base \overline{AB} is given. An isosceles triangle ABD with the angle of size 65° at the base \overline{BD} is drawn on the same side of the plane, considering the line AB . What is the size of angle $\sphericalangle DAC$?

A. 40°	B. 35°	C. 20°	D. It cannot be determined.	E. We do not wish to answer.
-------------------------	-------------------------	-------------------------	------------------------------------	-------------------------------------

7.14. List all the three-digit multiples of number 12 with the tens digit equal to 0. What is their sum?

A. 4 536	B. 3 012	C. 4 236	D. None of the aforementioned	E. We do not wish to answer.
--------------------	--------------------	--------------------	---	-------------------------------------

7.15. What is the sum of all three-digit number with different and even digits that are not equal to zero?

A. 13 320	B. 16 650	C. 22 200	D. None of the aforementioned	E. We do not wish to answer.
---------------------	---------------------	---------------------	---	-------------------------------------