



## Winter Round 2019./2020.

SCHOOL	
TEAM NUMBER	
CATEGORY	<b>Year 5</b>
COMPETITION COMMISSIONER	

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

ANSWERS:

YEAR 5					
5.1.		5.4.		5.8.	
5.2.		5.5.		5.9.	
5.3.		5.6.		5.10.	
		5.7.		5.11.	
				5.12.	
				5.13.	
				5.14.	
				5.15.	

I ♥ **MATematika**

[www.matzelcic.com.hr](http://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

<b>CORRECT ANSWER: 10 POINTS</b>	<b>ANSWER „E“: 0 POINTS</b>	<b>ELSE: -2 POINTS</b>
----------------------------------	-----------------------------	------------------------

5.1. Instead of subtracting 44, Jakov added 44. What is the difference between the number he got and the number he should have gotten?

<b>A.</b> 88	<b>B.</b> 44	<b>C.</b> 22	<b>D.</b> 66	<b>E.</b> We do not wish to answer
-----------------	-----------------	-----------------	-----------------	------------------------------------

5.2. Jelena is celebrating her tenth birthday, and on her cake, there are 10 candles lit at the same time. If one candle burns out in 1 minute, how much time is needed for all the 10 candles to burn out?

<b>A.</b> 600 seconds	<b>B.</b> 60 seconds	<b>C.</b> 300 seconds	<b>D.</b> 120 seconds	<b>E.</b> We do not wish to answer
--------------------------	-------------------------	--------------------------	--------------------------	------------------------------------

5.3. Marija decided to save money and on the first day, she put 12 kn in her piggy bank. Grandma wanted to help Marija and she promised to give her twice the amount of money that she has in the piggy bank at that moment, each time Marija sweeps her yard. How many times must Marija sweep grandma's yard if she wants to save more than 400 kn? Except the 12 kn at the beginning, in her piggy bank, Marija just put the money she got from her grandma.

<b>A.</b> 3	<b>B.</b> 4	<b>C.</b> 5	<b>D.</b> 6	<b>E.</b> We do not wish to answer
----------------	----------------	----------------	----------------	------------------------------------

<b>CORRECT ANSWER: 20 POINTS</b>	<b>ANSWER „E“: 0 POINTS</b>	<b>ELSE: -4 POINTS</b>
----------------------------------	-----------------------------	------------------------

5.4. How much is  $(30+31+32+\dots+89+90) - (20+21+22+\dots+79+80)$ ?

<b>A.</b> 620	<b>B.</b> 590	<b>C.</b> 600	<b>D.</b> 610	<b>E.</b> We do not wish to answer
------------------	------------------	------------------	------------------	------------------------------------

5.5. In the first round of MAT League there were twice as many teams placed below Mark's team than above Mark's team. Which of the following numbers could be the number of teams participating in the first round?

<b>A.</b> 412	<b>B.</b> 501	<b>C.</b> 302	<b>D.</b> It cannot be determined	<b>E.</b> We do not wish to answer
------------------	------------------	------------------	--------------------------------------	------------------------------------

5.6. Matko the crab walks in such a way that after six steps forward, he makes three steps backwards. Every step Matko makes is 2 cm long. How many steps must Matko make to reach one hole from another if we know that the distance between the two holes is 1 m?

<b>A.</b> 140	<b>B.</b> 148	<b>C.</b> 146	<b>D.</b> 144	<b>E.</b> We do not wish to answer
------------------	------------------	------------------	------------------	------------------------------------

5.7. When a digital clock shows 13:24 then the sum of all digits is  $1 + 3 + 2 + 4 = 10$ . What is the greatest possible sum of digits on a digital clock during one day?

<b>A.</b> 19	<b>B.</b> 20	<b>C.</b> 23	<b>D.</b> 24	<b>E.</b> We do not wish to answer
-----------------	-----------------	-----------------	-----------------	------------------------------------

**CORRECT ANSWER: 20 POINTS** | **ANSWER „E“: 0 POINTS** | **ELSE: -4 POINTS**

5.8. In a bag there are 900 balls with numbers from 100 to 999 written on them. If we remove all the balls that have the hundreds digit equal to 1 and the ones digit equal to 5, how many balls will remain in the bag?

<b>A.</b> 810	<b>B.</b> 710	<b>C.</b> 800	<b>D.</b> 720	<b>E.</b> We do not wish to answer
------------------	------------------	------------------	------------------	------------------------------------

5.9. Ivan is the goalkeeper of the school football team and he is also really messy. In the drawer of his wardrobe, there are 8 different pairs of socks, two different pairs of gloves, 4 sport shirts and 3 sport shorts. Before he went to his football training session, his family told him:

Mum: "If you take out 20 objects from the drawer, there will surely be at least one pair of the same socks among them."

Dad: "If you take out 23 objects from the drawer, there will surely be at least one pair of the same gloves among them."

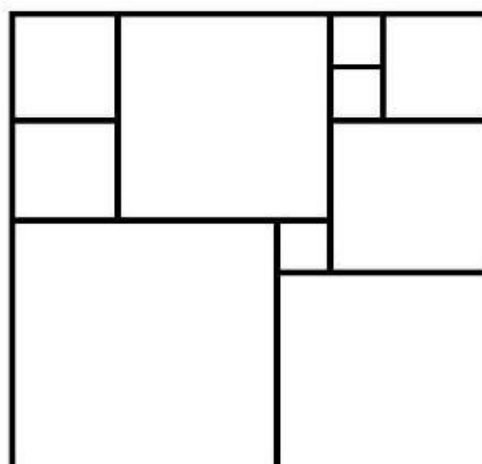
Grandma: "If you take out 14 socks from the drawer, there will surely be seven pairs of the same socks among them."

Grandpa: "If you take out 21 objects from the drawer, there will surely be a sport shirt among them."

Who is correct?

<b>A.</b> Mum	<b>B.</b> Dad	<b>C.</b> Grandma	<b>D.</b> Grandpa	<b>E.</b> We do not wish to answer
------------------	------------------	----------------------	----------------------	------------------------------------

5.10. All the quadrilaterals shown in the figure are squares. If the perimeter of the biggest one is 144 cm, what is the perimeter of the smallest one?



<b>A.</b> 12	<b>B.</b> 16	<b>C.</b> 20	<b>D.</b> 24	<b>E.</b> We do not wish to answer
-----------------	-----------------	-----------------	-----------------	------------------------------------

5.11. Number 303 is the same if read from the left or from the right. How many such three-digit numbers are there?

<b>A.</b> Less than 100	<b>B.</b> More than 99 and less than 151	<b>C.</b> More than 150 and less than 201	<b>D.</b> More than 200	<b>E.</b> We do not wish to answer
-------------------------	--	---	-------------------------	------------------------------------

5.12. A square is intersected by two parallel lines and divided into three rectangles so that the areas of the two smaller rectangles are equal and the area of the third rectangle is equal to the sum of the areas of the smaller ones. If the perimeter of the bigger rectangle is by 120 cm greater than the perimeter of one of the smaller rectangles, what is the perimeter of the given square?

<b>A.</b> Less than 800 cm	<b>B.</b> Between 800 cm and 900 cm	<b>C.</b> Between 900 cm and 1 000 cm	<b>D.</b> Greater than 1 000 cm	<b>E.</b> We do not wish to answer
----------------------------	-------------------------------------	---------------------------------------	---------------------------------	------------------------------------

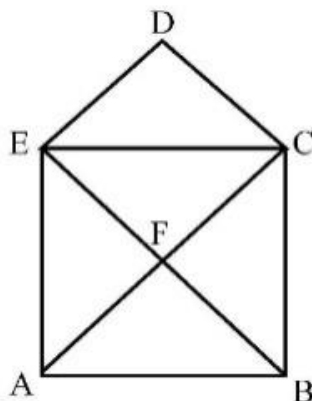
5.13. Ana wants to construct all the isosceles triangles whose base is 6 cm, the lengths of their sides given in centimetres are natural numbers and their perimeter is less than 30 cm. How many such triangles can Ana construct?

<b>A.</b> 11	<b>B.</b> 7	<b>C.</b> 9	<b>D.</b> 8	<b>E.</b> We do not wish to answer
--------------	-------------	-------------	-------------	------------------------------------

5.14. Mary has 18 carrots and she wants to give them to her bunnies. If Mary has 4 bunnies (Miki, Tiki, Siki, and Ziki), and wants to give each at least 4 carrots, in how many ways can she give all 18 carrots to her bunnies?

<b>A.</b> 6	<b>B.</b> 8	<b>C.</b> 10	<b>D.</b> None of the aforementioned	<b>E.</b> We do not wish to answer
-------------	-------------	--------------	--------------------------------------	------------------------------------

5.15. Katherine wishes to draw a figure as shown in the figure in one move, that is, so that she doesn't lift her pen from the paper and that she doesn't draw the same line twice. From how many of the given 6 points can she start drawing, to be able to do this?



<b>A.</b> 0	<b>B.</b> 2	<b>C.</b> 4	<b>D.</b> 6	<b>E.</b> We do not wish to answer
-------------	-------------	-------------	-------------	------------------------------------