Winter Round 2019./2020.

SCHOOL	
TEAM NUMBER	
CATEGORY	**Year 8**
COMPETITION COMISSIONER	

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

ANSWERS:

YEAR 8					
8.1.		8.4.		8.8.	
8.2.		8.5.		8.9.	
8.3.		8.6.		8.10.	
		8.7.		8.11.	
				8.12.	
				8.13.	
				8.14.	
				8.15.	

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www.matzelcic.com.hr

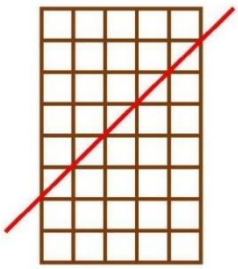
Author: Maja Zelčić, mathematics professor
Translator: Sofija Čubrić, mag. educ. math. et inf.
Revision: Sanja Stilinović, mathematics professor
Tamara Nemeth, mathematics professor

CORRECT ANSWER: 10 POINTS	ANSWER „E“: 0 POINTS	ELSE: –2 POINTS

8.1. 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?

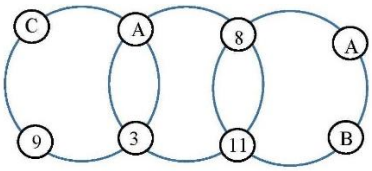
A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
6	8	10	None of the aforementioned	

8.2. The chocolate weighs 200 g and it broke into two parts as shown in the image. By how many grams is the bigger part of the chocolate heavier than the smaller part?



A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
35 g	20 g	25 g	None of the aforementioned	

8.3. The sum is equal in all three circles shown on the figure. What is A + B + C?



A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
25	20	15	It cannot be determined	

CORRECT ANSWER: 10 POINTS	ANSWER „E“: 0 POINTS	ELSE: –2 POINTS

8.4. Tom mixed fruit syrup and water in the ratio 1 : 7 in a glass of 2 dl. His sister Rea used a glass of 3 dl to mix fruit syrup and water in the ratio 2 : 9. Their mother considers such drinks too sweet s she tool both of their mixtures, poured them into the same pitcher and added 2 dl of water. What is the ratio od fruit syrup and water in the pitcher?

A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
7 : 37	5 : 39	35 : 229	It cannot be determined	

8.5. If a takes 7 hours for a pipe to empty a pool of 500 l of water, which linear function describes the amount of water in litres in the pool after *x* hours of emptying?

A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
$f(x)=-7x+500$	$f(x)=-\frac{500}{7}x+500$	$f(x)=7x-500$	$f(x)=\frac{1}{7}x+500$	

8.6. The given system is $\begin{cases} 2x-ay=6 \\ x+y=5 \end{cases}$. Find number *a* such that $\frac{x}{y}=\frac{13}{2}$ is true. Which statement is true?

A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
Such *a* does not exist	$a<-1$	$-1\le a\le 1$	$a>1$	

8.7. Point T is 2 cm away from a circle with a 2 cm radius. Find the angle between the tangents of a circle that intersect at point T.

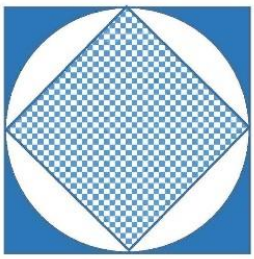
A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
0°	30°	45°	60°	

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

8.8. The price of a shirt increased by 5 % and after a month by another 10 %. If Tihana wants to buy the shirt at its old price, before the two price increases, what is the percentage of the discount for cash (rounded to the nearest whole number) the cashier should give her?

A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
13 %	14 %	15 %	16 %	

8.9. A circle with a radius od 2 cm, as shown on the figure, has an inscribed square and a circumscribed square. What is the difference between the area covered in little squares and the white area?



A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
$6-2\pi$ cm^2	$8-4\pi$ cm^2	$16-4\pi$ cm^2	None of the aforementioned	

8.10. How much is $\sqrt{1000^2-999^2+998^2-997^2+12^2-13^2}$?

A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
Between 70 and 90	Between 90 and 110	Less than 70	More than 110	

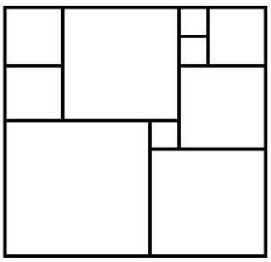
8.11. The sum of two natural numbers is 1882. If we add the digit 8 at the end of the first number, we will get a number that is twice as big as the second number. What is the sum of the digits of the second number?

A.	**B**.	**C**.	**D**.	**E**. We do not wish to answer
19	23	21	It cannot be determined	

8.12. What is the sum of all three-digit numbers with different and odd digits?

A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
33 300	16 650	66 600	None of the aforementioned	

8.13. 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?

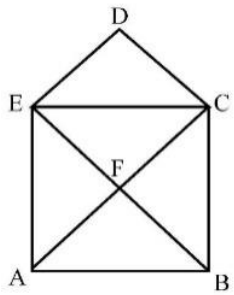


A.	**B**.	**C**.	**D**.	**E**. We do not wish to answer
12	16	20	24	

8.14. What is the angle between the diagonals of a trapezium if its side lengths are 3 cm, 3 cm, 3 cm i 6 cm?

A.	**B.**	**C.**	**D.** It cannot be determined	**E.** We do not wish to answer
90°	80°	60°		

8.15. 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?



A.	**B**.	**C**.	**D**.	**E**. We do not wish to answer
0	2	4	6	