Autumn 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.			

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

8.1. What is the number of the vertices of a polygon such that from one of its vertices 22 diagonals can be drawn?

A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
22	23	24	25	

8.2. Which of the following acronyms is not a theorem about the similarity of triangles?

A.	**B.**	**C.**	**D.** None of the aforementioned	**E.** We do not wish to answer
S-S-S	S-A-S	A-S-A		

8.3. Which line is parallel to the line $\dfrac{x}{3}+\dfrac{y}{2}=6$?

A. $2x-3y+6=0$	**B.** $\dfrac{x}{3}-\dfrac{y}{2}=6$	**C.** $4x-6y-6=0$	**D.** $-\dfrac{x}{3}=\dfrac{y}{2}+6$	**E.** We do not wish to answer

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

8.4. In which ratio should we mix hot water of temperature 93º with cold water of temperature 13º to get water of a temperature 25º?

A.	**B.**	**C.**	**D.** It cannot be determined	**E.** We do not wish to answer
3 : 17	13 : 93	17 : 3		

8.5. Point *S* is the centre of the circle on the picture. If the size of the angle $\angle ADT$ is 62º and triangle *BCT* is an isosceles triangle with the base $\overline{CT}$, what is the size of the angle $\angle TAD$?
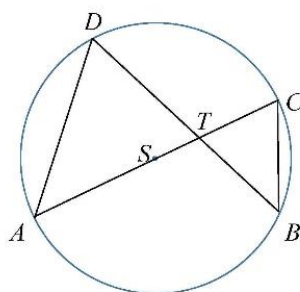
A.	**B.**	**C.**	**D.** It cannot be determined	**E.** We do not wish to answer
56º	62º	36º		

8.6. The price of shoes is 345 kn and they are 15% more expensive than the bag. If Ivana paid 1000 kn for shoes, a bag and pants, by how much are the pants more expensive than the shoes?

A.	**B.**	**C.**	**D.**	**E.** We do not wish to answer
110 kn	55 kn	258,25 kn	10 kn	

8.7. For which of the given properties of the coefficients of the linear function $f(x) = ax + b$ will its zero (x-intercept) be positive?

A.	**B.**	**C.**	**D.** None of the aforementioned	**E.** We do not wish to answer
$a > 0$ i $b > 0$	$a > 0$ i $b < 0$	$a < 0$ i $b < 0$		

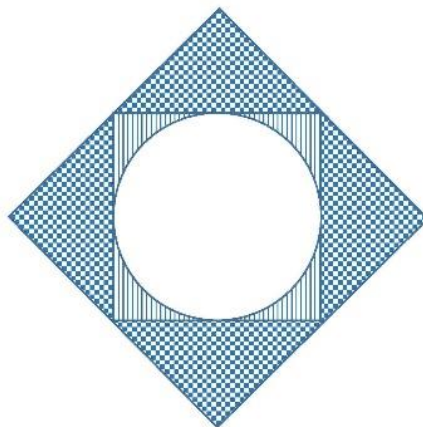| **CORRECT ANSWER: 30 POINTS**	**ANSWER „E": 0 POINTS**	**ELSE: –6 POINTS**

8.8. 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	

8.9. To a square with a side length of 2 cm a a circle is inscribed, and a square is circumscribed (drawn on the outside). By how much is the area filled with squares greater than the area filled with lines?

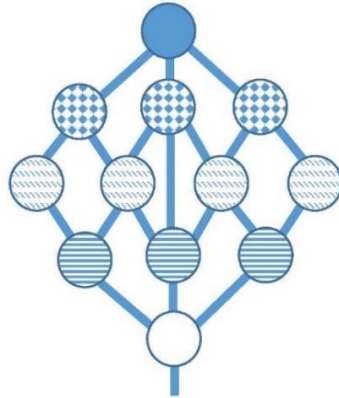| **A.**	**B.**	**C.**	**D.** None of the aforementioned	**E.** We do not wish to answer
π cm^2	$4 - \pi$ cm^2	2π cm^2		

8.10. The sum of the smallest and the greatest divisor of the number a is 255. What is the sum of the rest of its divisors?

A.	**B.**	**C.**	**D.** None of the aforementioned	**E.** We do not wish to answer
Greater than 200	129	Less than 100		

8.11. What is the central angle of the sector of a circle whose perimeter is equal to the circumference of the circle?

A. $360° - \dfrac{360°}{\pi}$	B. $360° - \dfrac{180°}{\pi}$	C. $\dfrac{360°}{\pi}$	D. It cannot be determined	E. We do not wish to answer

8.12. In the town of Matkić, a building has been built with beautiful observatories connected by stairs. How many different paths can lead tourists from the bottom to the top of the building if they visit each floor at most once?

A. 11	B. 13	C. 9	D. None of the aforementioned	E. We do not wish to answer

8.13. 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. 6	B. 7	C. 9	D. 10	E. We do not wish to answer

8.14. 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. 5860	B. 4059	C. 4869	D. It cannot be detemined	E. We do not wish to answer

8.15. 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. 35 cm	B. 25 cm	C. 50 cm	D. It cannot be determined	E. We do not wish to answer