

UNIVERSITY OF NEW BRUNSWICK
UNIVERSITÉ DE MONCTON
39th NEW BRUNSWICK
MATHEMATICS COMPETITION

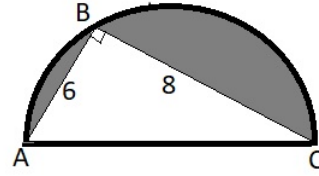
Friday, May 10th, 2024

GRADE 9

INSTRUCTIONS TO THE STUDENT:

1. Do not start the examination until you are told to do so.
2. You are permitted to use rough paper. No other aids are necessary.
3. This is a multiple-choice test. Each question is followed by five answers marked A, B, C, D, E. Only one is correct. When you have decided on your choice, mark the appropriate letter on your answer sheet using the pencil provided.
4. Problems are worth 3 points each in part A, 4 points each in part B, and 5 points each in part C. The penalty for incorrect answers is one quarter of the points assigned for that question. No penalty is assessed for answers which are left blank.
5. Diagrams are NOT drawn to scale. They are intended as aids only.
6. You have 60 minutes to answer the questions.
7. The use of calculators in the examination room is not allowed.

16. AC is the diameter of the semicircle ABC . Triangle ABC is a right triangle at B , $AB = 6$ cm and $BC = 8$ cm. What is, in cm^2 , the area of the total gray section?



- (A) $\frac{25\pi}{2} - 24$ (B) $25\pi - 48$ (C) $50\pi - 24$ (D) $50\pi - 48$ (E) $100\pi - 48$

17. Adam was a child for a fifth of his life, an adolescent for a tenth of his life, a civil servant for half of his life and retired for 12 years. At what age did he die?

- (A) 42 (B) 56 (C) 60 (D) 100 (E) 120

18. Let the number made up of 2024 digits and which is obtained by juxtaposing the digits of the number 2024 : 202420242024.....2024. What is the maximum number of digits that must be removed from this number to have a new number whose sum of its digits is 2024?

- (A) 506 (B) 1012 (C) 1518 (D) 2024 (E) 4048

19. There are three closed doors and behind one of them is a tiger. A sentence is written on each door.

- Door 1 : The tiger is behind this door.
- Door 2 : The tiger is not behind this door.
- Door 3 : The sum of the three internal angles of a triangle is 360° .

Only one of the sentences written is true. Behind which door is the tiger?

- (A) 1 (B) 2 (C) 3 (D) none of these answers (E) no solution possible

20. How many different ways can you read the word KAYAK if you have to read from left to right, or top to bottom, or by combining these two ways?

		K		
	K	A	Y	
K	A	Y	A	K
	Y	A	K	
		K		

- (A) 16 (B) 18 (C) 20 (D) 22 (E) 24

