

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

Friday, May 10th, 2024

GRADE 8

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.

9. The average of 3 numbers is 9. When a fourth number is added, the average becomes 8. What is this fourth number?

- (A) 5 (B) 10 (C) 15 (D) 20 (E) 25

10. Justin had some money. He used half of that amount to buy a book. Then he gave half of the rest to his sister Audrey and finally he used half of what was left to buy a game for his cat. Knowing that he has \$5 left, how much money did Justin have at the beginning?

- (A) \$20 (B) \$40 (C) \$60 (D) \$80 (E) \$100
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Part B

11. Two men enter a restaurant and each hangs his hat on one of the four available hooks. In how many different ways can they hang their hats?

(A) 4 (B) 8 (C) 12 (D) 16 (E) 24

12. We have two car rental agencies. The first agency charges \$60 per day, plus \$0.25 per kilometer and the second charges \$45 per day, plus \$0.45 per kilometer. If a car is rented for a day in each of those agencies, at how many kilometers will the overall rental price be the same for both agencies?

(A) 50 km (B) 75 km (C) 100 km (D) 125 km (E) 150 km

13. A group of 16 tourists wants to spend the night in a hotel. The hotel offers rooms with 3 single beds for \$150 a night and rooms with 5 single beds for \$200 a night. If each person occupies a single bed, what is the least this group of tourists have to pay to spend the night in this hotel?

(A) \$600 (B) \$700 (C) \$900 (D) \$1,100 (E) \$1,300

14. A man's will leaves \$560,000 to his family. According to his will, his money is to be divided as follows : His three children have equal shares, while his wife and sister each have half the share of one child. What is his wife's share?

(A) \$50,000 (B) \$60,000 (C) \$70,000 (D) \$80,000 (E) \$90,000

15. In a school, the number of student in grade five is 5 times the number of students in grade six . Knowing that the number of pupils in the grade six is 45 students, what is the number of students in these two levels in this school ?

(A) 180 (B) 230 (C) 270 (D) 310 (E) 370

16. A car leaves Moncton towards Halifax at a speed of 120 km/h. Taking the same path in the opposite direction, another car leaves at the same time from Halifax towards Moncton at a speed of 100 km/h. Knowing that the distance on this path between the two cities is 253 km, after how long will the two cars pass each other ?

(A) 49 minutes (B) 69 minutes (C) 75 minutes (D) 80 minutes (E) 89 minutes

