

UNIVERSITY OF NEW BRUNSWICK

UNIVERSITÉ DE MONCTON

**38th NEW BRUNSWICK
MATHEMATICS COMPETITION**

Friday, May 12th, 2023

GRADE 7

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.

Part A

1. Which of these numbers represents ten thousand?

- (A) 10 000 (B) 100 000 (C) 101 000 (D) 1 000 000 (E) 100 000 000
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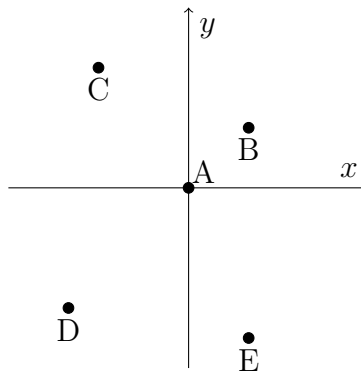
2. Which of these lists has the decimals in order from least to greatest in value?

- (A) 0.83, 0.9, 0.461, 0.0094
(B) 0.461, 0.83, 0.9, 0.0094
(C) 0.83, 0.9, 0.461, 0.0094
(D) 0.0094, 0.461, 0.9, 0.83
(E) 0.0094, 0.461, 0.83, 0.9
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3. What is the value of 10 divided by 0.5?

- (A) 2 (B) 5 (C) 20 (D) 50 (E) 200
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4. Which of the points could represent $(2, -5)$?

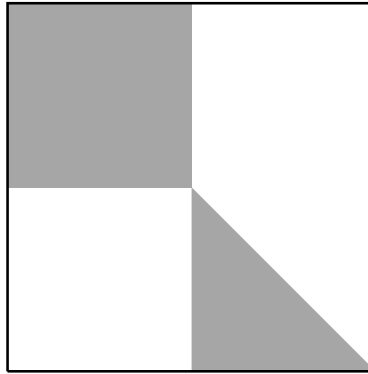


- (A) A (B) B (C) C (D) D (E) E
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5. Today is Friday. What day of the week will it be 50 days from today?

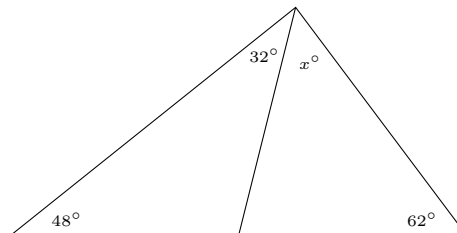
- (A) Saturday (B) Sunday (C) Monday (D) Tuesday (E) Wednesday
-

6. What fraction of the area of the large square is shaded?



- (A) $\frac{1}{4}$ (B) $\frac{2}{7}$ (C) $\frac{1}{3}$ (D) $\frac{3}{8}$ (E) $\frac{2}{3}$
-

7. In the triangle shown, what is the value of x ?



- (A) 28 (B) 38 (C) 48 (D) 58 (E) 68
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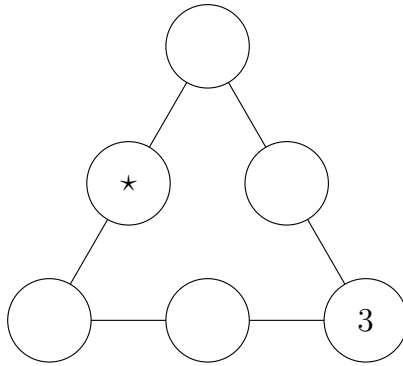
8. Which of these expressions is equal to $2 \times 2 \times 2 \times 3 \times 3 \times 5$?

- (A) $8 \times 3 \times 15$ (B) $4 \times 6 \times 5$ (C) $8 \times 6 \times 5$ (D) $4 \times 16 \times 5$ (E) $4 \times 12 \times 15$
-

9. Doubling the length of all sides of a square would result in a new square with a perimeter of 72 cm. What is the perimeter of the original square?

(A) 18 cm (B) 24 cm (C) 36 cm (D) 72 cm (E) 81 cm

10. The numbers 1, 2, 4, 5, and 6 must each be placed once in the open circles so that the sum of the numbers along each side of the triangle equals 9. Which number must be placed where the ★ appears?



(A) 1 (B) 2 (C) 4 (D) 5 (E) 6

Part B

- (A) 100 (B) 1000 (C) 10 000 (D) 100 000 (E) 1 000 000

- (A) 0.00001 (B) 0.001 (C) 1000 (D) 100 000 (E) 1 000 000

- number because it is the average of 3 and 17.

What is the smallest sweet number? (Note that 1 is not a prime number.)

- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7

- the number, adds 5, divides by 3.

This gives a final value of 21. What number did Raheem start with?

- (A) 6 (B) 24 (C) 29 (D) 39 (E) 136

- The original price of a jacket is \$100. If the price is decreased by 20% and then increased by 20%, what is the new price of the jacket?

- (A) \$24 (B) \$64 (C) \$96 (D) \$100 (E) \$120

- the digit 9 be written?

- (A) 9 (B) 19 (C) 20 (D) 29 (E) 30

(A) A (B) B (C) C (D) D (E) E

Part C

- (A) 1 (B) 3 (C) 5 (D) 6 (E) 8

- (A) 32 (B) 35 (C) 41 (D) 51 (E) 70

- (A) 4 (B) 5 (C) 9 (D) 17 (E) 18

- (A) 4 (B) 7 (C) 11 (D) 12 (E) 18

25. A sequence of positive integers starts with a number. Each subsequent number is the largest integer less than or equal to one-third of the previous number. The sequence ends when it reaches 1 or 2.

For example, a sequence with a starting number of 100 would go 100, 33, 11, 3, 1.

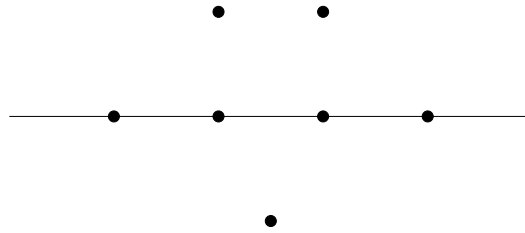
A sequence with a starting number of 22 would go 22, 7, 2.

Which of the following starting numbers produces a sequence ending with 1?

- (A) 63 (B) 64 (C) 71 (D) 80 (E) 81

26. How many triangles can be formed using three of the given points as vertices?

(Keep in mind that three vertices in a straight line do not form a triangle.)



- (A) 23 (B) 26 (C) 28 (D) 29 (E) 31

Réponses/Answers

No	R7
1	1
2	5
3	3
4	5
5	1
6	4
7	2
8	1
9	3
10	5
11	3
12	4
13	2
14	3
15	3
16	3
17	4
18	2
19	3
20	1
21	4
22	2
23	2
24	3
25	5
26	5