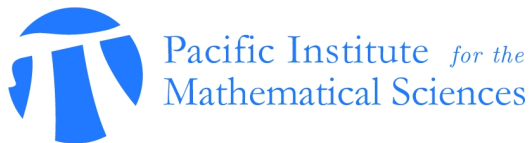# MOUNT ROYAL UNIVERSITY 1910

Eleventh Annual
Calgary Elementary School Mathematics Contest
April 26, 2023

LEVEL-1 CONTEST

Instructions:

- You have 50 minutes to answer the 20 questions.
- Record your answer for each question on the separate answer sheet.
- There is no penalty for incorrect answers, so answer every question.
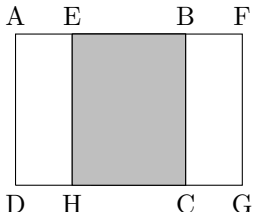- Good luck!

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MOUNT ROYAL UNIVERSITY 1910

Pacific Institute *for the* Mathematical Sciences

PART A: Record the correct answer on the separate answer sheet. Each correct answer is worth **5 points.**
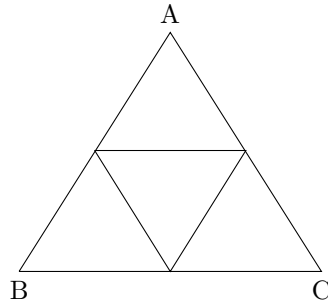
1. Which of the following fractions is closest to zero?
   (a) $\frac{1}{8}$ (b) $\frac{1}{4}$ (c) $\frac{1}{3}$ (d) $\frac{1}{2}$

2. While using a skipping rope, Amy jumps 40 times in 60 seconds. Jumping at this rate, how many times does Amy jump in 75 seconds?
   (a) 40   (b) 50   (c) 60   (d) 75

3. Which one of the following numbers lies between 4 and 5 on a number line?
   (a) $\frac{5}{4}$ (b) $\frac{8}{3}$ (c) $\frac{11}{2}$ (d) $\frac{14}{3}$

4. A prime number is called "super prime" if doubling it and subtracting one results in another prime number. Which of the following is not a "super prime"?
   (a) 2   (b) 3   (c) 5   (d) 7

5. A cube has a volume of $64\ cm^3$. What is the area of one face of the cube?
   (a) $8\ cm^2$ (b) $16\ cm^2$ (c) $32\ cm^2$ (d) $64\ cm^2$

6. Ashok types five characters every three seconds. If he continues at this speed, how many minutes will it take him to type 3000 characters?
   (a) 30   (b) 300   (c) 600   (d) 1000

7. The ratio of the number of big rabbits to the number of small rabbits at a pet store is seven to three. There are fifty rabbits in the store. How many big rabbits are there?
   (a) 10   (b) 15   (c) 20   (d) 35

8. If R is a rectangle whose side lengths are always whole numbers, then its perimeter cannot be
   (a) 10   (b) 16   (c) 7   (d) 4

9. The regular price of a candy is 10 cents, and a special Friday prices is 5 cents. Nicole bought 10 on Friday and 15 on Saturday. If she had bought all those candies on Friday, then the number of candies she could have bought is
   (a) 50   (b) 40   (c) 30   (d) 20

10. The current year is 2023. How many years will it be before the sum of the digits in the year is the same as this year?
    (a) 7   (b) 8   (c) 9   (d) 10

PART B: Record the correct answer on the separate answer sheet. Each correct answer is worth **6 points.**

11. The number $\dfrac{(0.3)^3}{0.9}$ equals

    (a) 0.03   (b) 0.3   (c) 3.0   (d) 1

12. Two identical 6 foot by 6 foot squares $ABCD$ and $EFGH$ overlap to form the rectangle $AFGD$ below.

    If the shaded area is 24 square feet then what is the perimeter of $AFGD$ in feet?

    (a) 20   (b) 24   (c) 28   (d) 48

13. You have a 30 meter by 20 meter rectangular garden. You want to fence in 3 sides leaving one of the 20 meter sides open. If the distance between two consecutive fence posts is 5 meters, then the number of fence posts needed is

    (a) 14   (b) 15   (c) 16   (d) 17

14. A bag contains 80 jellybeans, 20 of which are red, 20 are blue, 20 are green, and 20 are yellow. The least number that a blindfolded person must eat to be certain of having eaten at least one of every colour is

    (a) 4   (b) 5   (c) 61   (d) 80

15. A 24 hour digital clock shows that the current time is 12:05. The least amount of time you would have to wait in order to see the same four digits on the clock again (in any order) is

    (a) 1 hour , 20 minutes   (b) 2 hours, 57 minutes
    (c) 8 hours, 15 minutes (d) 24 hours

PART C: Record the correct answer on the separate answer sheet. Each correct answer is worth **8 points.**

16. A book has 225 pages. The total number of digits it takes to number the pages (starting at 1 and ending with 225) is

    (a) 267   (b) 567   (c) 657   (d)675

17. In the diagram below the triangle ABC is an equilateral triangle that has been subdivided into 4 equilateral triangles.

    If the sum of the perimeters of the four smaller triangles adds to 48 cm then what is the perimeter of the triangle ABC? (A triangle is equilaterial if all three sides are the same length).

    (a) 48 cm (b) 36 cm (c) 24 cm (d) 12 cm

18. Rearranging the digits of the number 123 produces different three digit numbers. The sum of all such numbers, including 123 is

    (a) 1323   (b) 1332   (c) 2331   (d) 2313

19. Randy wrote a math contest with 80 other kids. The ratio of the number of kids who finished ahead of him to those who finished after him was three to five. In which position did Randy finish the contest?

    (a) 30   (b) 31   (c) 50   (d) 51

20. In a jar, there are 50 coins with a total value of $ 5.00. The coins are quarters (worth $ 0.25 each), dimes (worth $ 0.10 each), and nickels (worth $ 0.05 each). The number of nickels in the jar is three times the number of quarters. The number of dimes is one more than the number of nickels. The number of quarters in the jar is

    (a) 5   (b) 6   (c) 7   (d) 8