



Eleventh Annual
Calgary Elementary School
Mathematics Contest
April 26, 2023

LEVEL-2 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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PART A: Record the correct answer on the separate answer sheet. Each correct answer is worth **5 points**.

1. The number $\frac{(0.3)^3}{0.9}$ equals
(a) 0.03 (b) 0.3 (c) 3.0 (d) 1

2. If $P = 0.25$, $Q = (0.25)^2$ and $R = (0.25)^3$, then
(a) $P > Q > R$ (b) $Q > P > R$
(c) $R > Q > P$ (d) $R > P > Q$

3. The regular price of a candy is 15 cents, and a special sale price for Tuesdays is 10 cents. If Roxy bought 10 candies on Sunday and 15 candies on Tuesday, then the average price she paid for each candy, in cents, was
(a) 11 (b) 12 (c) 13 (d) 14

4. If the distance between consecutive fence posts is 5 meters, then the number of posts needed to build a fence around a triangular region with sides $20\ m$, $20\ m$ and $30\ m$ is
(a) 11 (b) 13 (c) 14 (d) 15

5. A bag contains 20 jellybeans of each colour red, blue, green and yellow. The least number of jellybeans that a blindfolded person must eat to be certain of having eaten at least one of each colour is
(a) 4 (b) 5 (c) 61 (d) 80

6. A fair coin is tossed three times. What is the chance that the three outcomes are all the same?
(a) 2 (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) $\frac{1}{8}$

7. Dogs in a pet store are classified as big dogs and small dogs. The ratio of the number of big dogs to the number of small dogs at the same store is three to seven. There are 18 big dogs in the store. How many dogs total are in the store?
(a) 42 (b) 50 (c) 60 (d) 63

8. Carlos scored a total of 30 points in his basketball team's first three games. He scored $\frac{1}{3}$ of the points in the first game and $\frac{1}{5}$ of the points in the second game. How many points did he score in the third game?
(a) 10 (b) 14 (c) 16 (d) 18

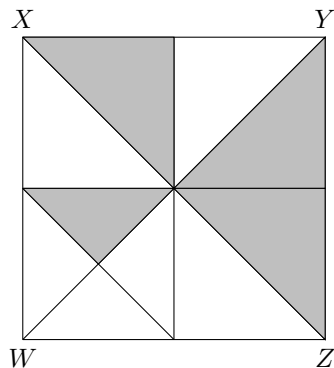
9. If R is a rectangle whose side lengths are whole numbers, then its perimeter cannot be which of these numbers?
(a) 10 (b) 16 (c) 17 (d) 24

10. John has three boxes of marbles with the same number of marbles in each box. If he gives away twelve marbles to one of his friends, he will be left with 39 marbles altogether. How many marbles are there in each box?
(a) 9 (b) 13 (c) 17 (d) 27

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

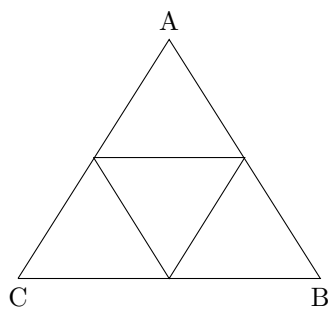
11. The total number of digits it takes to number the pages of a book from 1 to 250 inclusive is
 (a) 637 (b) 639 (c) 640 (d) 642
12. January 1, 2023 occurred on a Sunday. January 1, 2028 will occur on a
 (a) Thursday (b) Friday (c) Saturday (d) Sunday

13. Square $XYZW$ is divided into smaller squares, which are further divided into triangles as shown. What fraction of $XYZW$ is shaded?



- (a) $\frac{1}{4}$ (b) $\frac{4}{10}$ (c) $\frac{7}{16}$ (d) $\frac{7}{8}$

14. In the diagram below, triangle ABC is an equilateral triangle that is made up of four smaller equilateral triangles.



If each of the smaller triangles has a perimeter of 12 cm, then what is the perimeter of triangle ABC ?

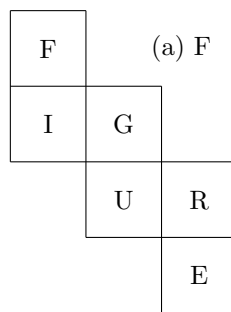
- (a) 48 cm (b) 36 cm (c) 24 cm (d) 12 cm

15. The number 63 is divisible by the sum of its digits, because $6 + 3 = 9$ and 9 divides evenly into 63. How many numbers are there between 20 and 30, inclusive, that are divisible by the sum of their digits?

- (a) 6 (b) 5 (c) 4 (d) 3

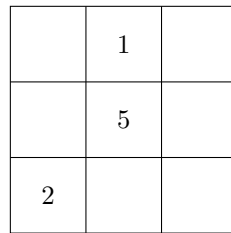
PART C: Record the correct answer on the separate answer sheet. Each correct answer is worth **8 points**.

16. If the figure below is folded to make a cube then the letter on the face opposite the face marked E will be



- (a) F (b) G (c) U (d) R

17. In the diagram below the digits 1, 2, 3, ..., 9 are put in the 9 squares so that each row, column and diagonal sum to 15. Each digit is used exactly once. What is the sum of the four corner numbers?



- (a) 10 (b) 15 (c) 20 (d) 25

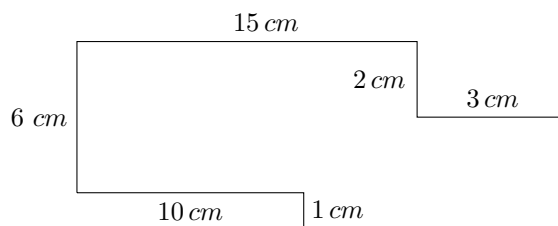
18. Andy wrote five math quizzes, each out of 10. His average on the five quizzes was 80%. The teacher decided to drop every student's lowest quiz score. What is Andy's highest possible resulting average?

- (a) 85% (b) 90% (c) 95% (d) 100%

19. How many different pairs (a, b) can be formed using numbers from the list of integers $\{1, 2, 3, \dots, 10\}$ such that $a < b$ and $a + b$ is even?

- (a) 15 (b) 20 (c) 25 (d) 30

20. What is the area of the enclosed region?



- (a) 110 cm^2 (b) 114 cm^2 (c) 126 cm^2 (d) 130 cm^2