The CENTRE for EDUCATION
in MATHEMATICS and COMPUTING
cemc.uwaterloo.ca

Gauss Contest

Grade 7

(The Grade 8 Contest is on the reverse side)

May 11 to May 22, 2026
(in North America and South America)

May 11 to May 22, 2026
(outside of North America and South America)

Time: 1 hour

Calculating devices are allowed, provided that they do not have any of the following features: (i) internet access, (ii) the ability to communicate with other devices, (iii) information previously stored by students (such as formulas, programs, notes, etc.), (iv) a computer algebra system, (v) dynamic geometry software.

Instructions

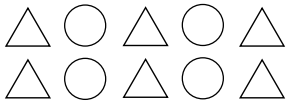
1. Do not open the contest booklet until you are told to do so.
2. You may use rulers, compasses and paper for rough work.
3. Be sure that you understand the coding system for your answer sheet. If you are not sure, ask your teacher to explain it.
4. This is a multiple-choice test. Each question is followed by five possible answers marked **A**, **B**, **C**, **D**, and **E**. Only one of these is correct. When you have made your choice, enter the appropriate letter for that question on your answer sheet.
5. Scoring: Each correct answer is worth 5 in Part A, 6 in Part B, and 8 in Part C.
   There is *no penalty* for an incorrect answer.
   Each unanswered question is worth 2, to a maximum of 10 unanswered questions.
6. Diagrams are *not* drawn to scale. They are intended as aids only.
7. When your supervisor instructs you to start, you will have *sixty* minutes of working time.

At the website cemc.uwaterloo.ca, you can find copies of past contests as well as excellent resources for enrichment, problem solving, and contest preparation.

Scoring: There is *no penalty* for an incorrect answer.
Each unanswered question is worth 2, to a maximum of 10 unanswered questions.

Part A: Each correct answer is worth 5.

1. In the diagram, how many of the shapes are triangles?



(A) 4 **(B)** 5 **(C)** 6
(D) 7 **(E)** 8

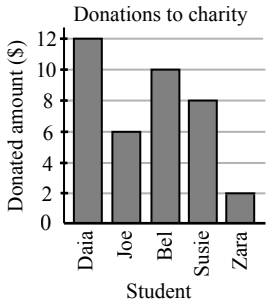
2. The integer that must replace the square so that $\square - 3 = 5$ is

(A) 6 **(B)** 8 **(C)** 10 **(D)** 9 **(E)** 7

3. Which of the following numbers is farthest away from 0 on a number line?

(A) -10 **(B)** -8 **(C)** 3 **(D)** 8 **(E)** 9

4. The graph shows the amount of money that each of five students donated to a charity. The total amount of money that they donated was

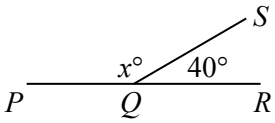


(A) \$36 **(B)** \$30 **(C)** \$28
(D) \$38 **(E)** \$32

5. Which digit is in the thousands place of the number 12 635?

(A) 1 **(B)** 2 **(C)** 6 **(D)** 3 **(E)** 5

6. In the diagram, $\angle PQR$ is a straight angle. The value of x is



(A) 100 **(B)** 140 **(C)** 50
(D) 120 **(E)** 320

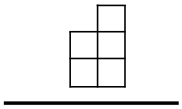
7. If a square's side length is a whole number, measured in centimetres, which of the following could be the perimeter of the square?

(A) 26 cm **(B)** 22 cm **(C)** 31 cm **(D)** 34 cm **(E)** 32 cm

8. Mauricio goes for a walk every day for five consecutive days. On the first day, he walks for 11 minutes. Each day after the first, he walks for 3 minutes longer than he walked the day before. In minutes, what is the total time that he walks over the five days?

(A) 85 **(B)** 73 **(C)** 106 **(D)** 65 **(E)** 74

9. In the diagram to the right, the shape is created from five squares. The shape is reflected in the horizontal line below it. The orientation of the shape as a result of the reflection is



(A)  **(B)**  **(C)** 

(D)  **(E)** 

10. In the sequence $43, 41, 39, 37, ..., 3, 1$, the first term is 43, each term after the first is 2 less than the term before it, and the last term is 1. How many terms are in the sequence?

(A) 19 **(B)** 20 **(C)** 21 **(D)** 22 **(E)** 23

Part B: Each correct answer is worth 6.

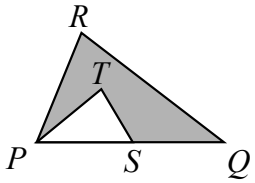
11. Lana participates in long jump. She completes 4 jumps and achieves the following results: 1.60 m, 1.65 m, 1.85 m, 1.90 m. What is the mean (average) of her results?

(A) 1.70 m **(B)** 1.85 m **(C)** 1.80 m **(D)** 1.65 m **(E)** 1.75 m

12. Riley is 3 years older than Elsa. The sum of their ages is 27. How old is Elsa?

(A) 10 **(B)** 11 **(C)** 12 **(D)** 13 **(E)** 14

13. In the diagram, $\triangle PQR$ has base $PQ = 8$ cm and height 6 cm. $\triangle PST$ has base $PS = 4$ cm and height 3 cm. What is the area of the shaded region?



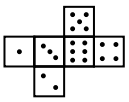
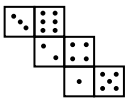
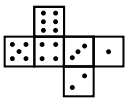
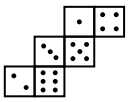
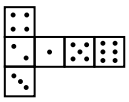
(A) 18 cm^2 **(B)** 6 cm^2 **(C)** 36 cm^2

(D) 12 cm^2 **(E)** 24 cm^2

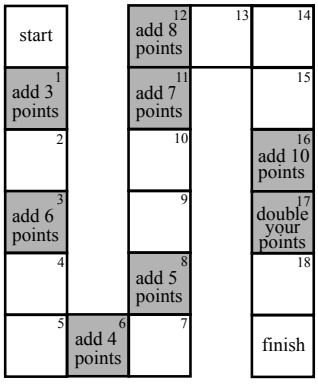
14. How many different four-digit integers greater than 2000 can be made using each of the four digits 2, 0, 2, 6 exactly once?

(A) 6 **(B)** 8 **(C)** 10 **(D)** 7 **(E)** 9

15. The numbers on the opposite faces of a standard six-sided die have a sum of 7. Which of the following is *not* the net of a standard six-sided die?

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

16. In the game shown, Riah begins on the start square. She rolls two standard six-sided dice and moves forward the number of squares equal to the sum rolled. She continues in this way, rolling two dice and moving forward until she lands on or passes the finish square. If she lands on a shaded square, she follows the instructions shown. If Riah begins with 0 points, what is the greatest number of points that she can finish this game with?



(A) 43 **(B)** 46 **(C)** 52

(D) 56 **(E)** 86

17. Asha is asked to cut a 36 m length of ribbon into smaller pieces so that each piece has equal length, and the ribbon width does not change. The length of each of the pieces must be a whole number of metres. If she must make at least 1 cut, how many possibilities are there for the length of the smaller ribbons?

(A) 10 **(B)** 7 **(C)** 6 **(D)** 5 **(E)** 8

18. Let $0.ABC$ represent a decimal number. When $0.ABC$ is rounded to the nearest tenth, the result is 0.024 greater than $0.ABC$. What is the value of $B + C$?

(A) 14 **(B)** 12 **(C)** 13 **(D)** 9 **(E)** 11

19. Emil chooses a positive integer so that

- It is between 100 and 199 inclusive.
- It is divisible by 4.
- The sum its digits is 5 or more.

How many different such integers could Emil choose?

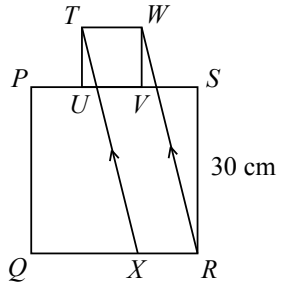
(A) 20 **(B)** 19 **(C)** 22 **(D)** 23 **(E)** 21

20. The Dollop sells ice cream cones. Each cone sold is exactly one of three different types: chocolate or vanilla or twist (chocolate and vanilla combined). Of all cones sold, $\frac{11}{17}$ contained some chocolate and $\frac{10}{17}$ contained some vanilla. If 85 ice cream cones were sold in total, how many were twist cones?

(A) 15 **(B)** 4 **(C)** 25 **(D)** 17 **(E)** 20

Part C: Each correct answer is worth 8.

21. In the diagram, $PQRS$ is a square with $RS = 30$ cm. $TUVW$ is a square with U and V on PS so that $PU = UV = VS$. Point X is on QR so that TX is parallel to WR. The area of parallelogram $TXRW$ is



(A) 200 cm^2 **(B)** 400 cm^2 **(C)** 600 cm^2

(D) 300 cm^2 **(E)** 412.3 cm^2

22. Beverly creates a sequence of integers. She begins by setting `sum` $=0$ and `a` $=1$. She then writes down the value of `sum` as the first term of the sequence. Beverly continues the sequence by applying the following steps:

- Step 1: She sets `sum` $=$ `sum` $+$ `a`.
- Step 2: She writes down the value of `sum` as the next term of the sequence.
- Step 3: If `a` $= 9$, she stops; otherwise she sets `a` $=$ `a` $+ 2$ and returns to Step 1.

What is the last term in Beverly's sequence?

(A) 36 **(B)** 81 **(C)** 16 **(D)** 9 **(E)** 25

23. Two bowls each contain both some blueberries and some raspberries. In the first bowl, the ratio of the number of blueberries to the number of raspberries is $3 : 7$. In the second bowl, the ratio of the number of blueberries to the number of raspberries is $2 : 5$. If there are 89 raspberries in total, the smallest possible number of blueberries is

(A) 36 **(B)** 38 **(C)** 35 **(D)** 37 **(E)** 34

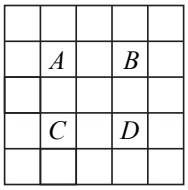
24. A *Sorrol number* is a five-digit positive integer $abcde$ for which

- each of a, b, c, d, and e is a different digit from 1 to 9 inclusive,
- the three-digit integer abc is divisible by 5,
- the three-digit integer bcd is divisible by 3, and
- the three-digit integer cde is divisible by 11.

The positive difference between the largest Sorrol number and the smallest Sorrol number is

(A) 84 978 **(B)** 83 989 **(C)** 85 015 **(D)** 84 038 **(E)** 85 968

25. The letters A, B, C, and D are placed into a 5 by 5 grid, as shown to the right. Four or fewer of the empty 1 by 1 squares are shaded in, so that



- each lettered square shares a side with exactly one shaded square, and
- no shaded square shares a side with another shaded square.

For example, Figure 1 and Figure 2, below, each show a possible way to shade the grid. Figures 3, 4 and 5 are not permitted ways to shade the grid. How many different ways can the grid be shaded?

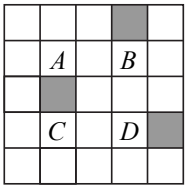


Figure 1

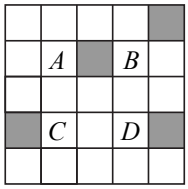


Figure 2

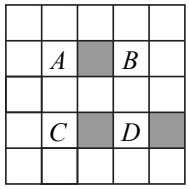


Figure 3

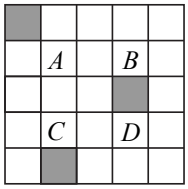


Figure 4

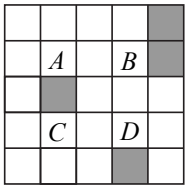


Figure 5

(A) 110 **(B)** 112 **(C)** 116 **(D)** 122 **(E)** 128