



Anniversary  
1963 – 1998

# Canadian Mathematics Competition

An activity of The Centre for Education  
in Mathematics and Computing,  
University of Waterloo, Waterloo, Ontario

## *Gauss Contest (Grade 7)*

(Grade 8 Contest is on the reverse side)

**Wednesday, May 13, 1998**

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**Time:** 1 hour

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**Calculators are permitted.**

### Instructions

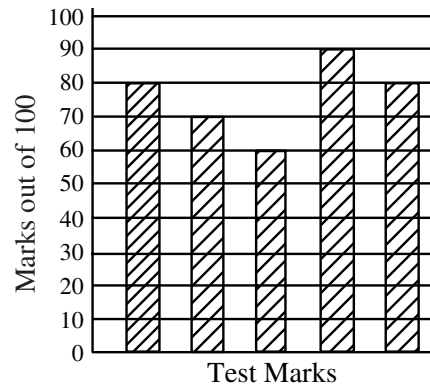
1. Do not open the examination booklet until you are told to do so.
2. You may use rulers, compasses and paper for rough work.
3. Be certain that you understand the coding system for your answer sheet. If you are not sure, ask your teacher to explain it.
4. This is a multiple-choice test. Each question is followed by five possible answers marked **A, B, C, D,** and **E.** Only one of these is correct. When you have decided on your choice, enter the appropriate letter on your answer sheet for that question.
5. Scoring:  
Each correct answer is worth 5 credits in Part A, 6 credits in Part B, and 8 credits in Part C.  
There is *no penalty* for an incorrect answer.  
Each unanswered question is worth 2 credits, to a maximum of 20 credits.
6. Diagrams are *not* drawn to scale. They are intended as aids only.
7. When your supervisor instructs you to begin, you will have *sixty* minutes of working time.

## Grade 7

Scoring: There is *no penalty* for an incorrect answer.  
Each unanswered question is worth 2 credits, to a maximum of 20 credits.

**Part A** (5 credits each)

1. The value of  $\frac{1998 - 998}{1000}$  is  
 (A) 1                      (B) 1000                      (C) 0.1                      (D) 10                      (E) 0.001
2. The number 4567 is tripled. The ones digit (units digit) in the resulting number is  
 (A) 5                      (B) 6                      (C) 7                      (D) 3                      (E) 1
3. If  $S = 6 \times 10\,000 + 5 \times 1000 + 4 \times 10 + 3 \times 1$ , what is  $S$ ?  
 (A) 6543                      (B) 65 043                      (C) 65 431                      (D) 65 403                      (E) 60 541
4. Jean writes five tests and achieves the marks shown on the graph. What is her average mark on these five tests?  
 (A) 74                      (B) 76                      (C) 70  
 (D) 64                      (E) 79

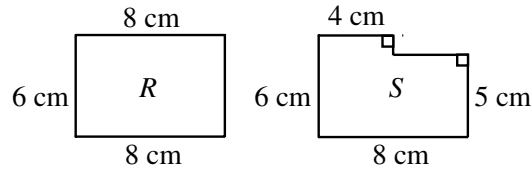


5. If a machine produces 150 items in one minute, how many would it produce in 10 seconds?  
 (A) 10                      (B) 15                      (C) 20                      (D) 25                      (E) 30
  6. In the multiplication question, the sum of the digits in the four boxes is  
 (A) 13                      (B) 12                      (C) 27  
 (D) 9                      (E) 22
- $$\begin{array}{r}
 879 \\
 \times 492 \\
 \hline
 \square 758 \\
 7\square 11 \\
 35\square 6 \\
 \hline
 43\square 468
 \end{array}$$
7. A rectangular field is 80 m long and 60 m wide. If fence posts are placed at the corners and are 10 m apart along the 4 sides of the field, how many posts are needed to completely fence the field?  
 (A) 24                      (B) 26                      (C) 28                      (D) 30                      (E) 32
  8. Tuesday's high temperature was  $4^{\circ}\text{C}$  warmer than that of Monday's. Wednesday's high temperature was  $6^{\circ}\text{C}$  cooler than that of Monday's. If Tuesday's high temperature was  $22^{\circ}\text{C}$ , what was Wednesday's high temperature?  
 (A)  $20^{\circ}\text{C}$                       (B)  $24^{\circ}\text{C}$                       (C)  $12^{\circ}\text{C}$                       (D)  $32^{\circ}\text{C}$                       (E)  $16^{\circ}\text{C}$
  9. Two numbers have a sum of 32. If one of the numbers is  $-36$ , what is the other number?  
 (A) 68                      (B)  $-4$                       (C) 4                      (D) 72                      (E)  $-68$
  10. At the waterpark, Bonnie and Wendy decided to race each other down a waterslide. Wendy won by 0.25 seconds. If Bonnie's time was exactly 7.80 seconds, how long did it take for Wendy to go down the slide?  
 (A) 7.80 seconds    (B) 8.05 seconds    (C) 7.55 seconds    (D) 7.15 seconds    (E) 7.50 seconds

# Grade 7

**Part B** (6 credits each)

11. Kalyn cut rectangle  $R$  from a sheet of paper. A smaller rectangle is then cut from the large rectangle  $R$  to produce figure  $S$ . In comparing  $R$  to  $S$



- (A) the area and perimeter both decrease  
 (B) the area decreases and the perimeter increases  
 (C) the area and perimeter both increase  
 (D) the area increases and the perimeter decreases  
 (E) the area decreases and the perimeter stays the same
12. Steve plants ten trees every three minutes. If he continues planting at the same rate, how long will it take him to plant 2500 trees?

- (A)  $1\frac{1}{4}$  h      (B) 3 h      (C) 5 h      (D) 10 h      (E)  $12\frac{1}{2}$  h

13. The pattern of figures  $\triangle \bullet \square \blacktriangle \circ$  is repeated in the sequence



The 214th figure in the sequence is

- (A)  $\triangle$       (B)  $\bullet$       (C)  $\square$       (D)  $\blacktriangle$       (E)  $\circ$
14. A cube has a volume of  $125 \text{ cm}^3$ . What is the area of one face of the cube?

- (A)  $20 \text{ cm}^2$       (B)  $25 \text{ cm}^2$       (C)  $41\frac{2}{3} \text{ cm}^2$       (D)  $5 \text{ cm}^2$       (E)  $75 \text{ cm}^2$

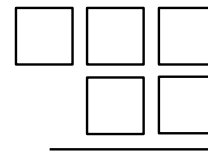
15. The diagram shows a magic square in which the sums of the numbers in any row, column or diagonal are equal. What is the value of  $n$ ?

- (A) 3      (B) 6      (C) 7  
 (D) 10      (E) 11

|   |     |   |
|---|-----|---|
| 8 |     |   |
| 9 |     | 5 |
| 4 | $n$ |   |

16. Each of the digits 3, 5, 6, 7, and 8 is placed one to a box in the diagram. If the two digit number is subtracted from the three digit number, what is the smallest difference?

- (A) 269      (B) 278      (C) 484  
 (D) 271      (E) 261



17. Claire takes a square piece of paper and folds it in half four times without unfolding, making an isosceles right triangle each time. After unfolding the paper to form a square again, the creases on the paper would look like

