Part A

1. The value of $\dfrac{2\,012 - 1\,000}{4}$ is

   (A) 3 (B) 53 (C) 203 (D) 253 (E) 553

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2. While doing a calculation, Fred made a mistake. He divided by 10 when he should have multiplied by 10. His incorrect answer was 10. What is the correct answer?

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

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3. Cindy and Sylvie each have some marbles. Sylvie says: You have 12 more marbles than me! Cindy says: I have three times as many marbles as you! What is the total number of marbles the two friends have?

   (A) 24 (B) 30 (C) 36 (D) 42 (E) 48

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4. Of course it is true that $\frac{1}{2}$ of $\frac{1}{3}$ is $\frac{1}{6}$ and also that $\frac{1}{3}$ of $\frac{1}{6}$ is $\frac{1}{18}$.
   What is $\frac{1}{6}$ of $\frac{1}{18}$?

   (A) $\frac{1}{24}$ (B) $\frac{1}{54}$ (C) $\frac{1}{72}$ (D) $\frac{1}{84}$ (E) $\frac{1}{108}$

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5. Which of the five numbers below is the average of the remaining four?

   (A) 2 (B) 8 (C) 9 (D) 10 (E) 11

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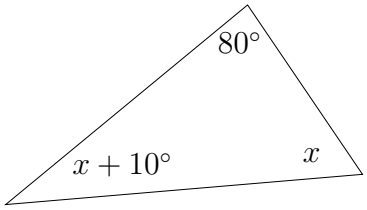
6. For the triangle shown, what is the value of x?



(A) 35° (B) 40° (C) 45° (D) 90° (E) 135°

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7. Adam and Betty picked 60 apples. If Adam picked three apples for every two apples that Betty picked, how many apples did Betty pick?

(A) 20 (B) 24 (C) 30 (D) 36 (E) 40

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8. Ahcène thought of a number. He added 3 to it, and then divided the result by 5. Finally, Ahcène subtracted 4 to obtain his final answer. If x represents the number Ahcène thought of, which expression best describes how he obtained his final answer?

(A) $\dfrac{x+3}{5} - 4$ (B) $x + \dfrac{3}{5} - 4$ (C) $\dfrac{x+3-4}{5}$

(D) $\dfrac{x+3}{5-4}$ (E) $\dfrac{x}{5} + 3 - 4$

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9. Farmer David plans to build a fence to keep deer out of his rectangular blueberry field. There is to be a fence post at each corner with additional posts every 3 m between the corners. How many fence posts will David require if his field is 60 m wide and 72 m long?

(A) 84 (B) 88 (C) 92 (D) 96 (E) 98

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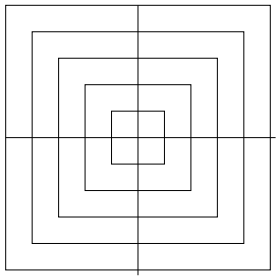
10. When n is divided by 5, the remainder is 3. What is the remainder when $3 \times n$ is divided by 5?

(A) 0 (B) 1 (C) 2 (D) 3 (E) 4

Part B

11. How many squares are in this figure?



(A) 10 (B) 15 (C) 20 (D) 25 (E) 30

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12. Suppose that $\frac{a}{7} = \frac{b}{5}$. What is the value of $\frac{5a + 7b}{a}$?

(A) 1 (B) 3 (C) 5 (D) 8 (E) 10

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13. Five people all shook hands with each other. How many handshakes were there altogether?

(A) 4 (B) 5 (C) 8 (D) 10 (E) 20

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14. The scale on a map reads 1 : 300 000. On the map, two cities are 12 cm apart. What is the actual distance between the two cities?

(A) 3.6 km (B) 36 km (C) 360 km (D) 3 600 km (E) 36 000 km

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15. Jean runs twice as fast as he walks. Jean walked 1 km to the corner store, then ran back. His total moving time was 20 minutes.

How fast does Jean run?

(A) 4.0 km/hr (B) 4.5 km/hr (C) 6.0 km/hr (D) 9.0 km/hr (E) 13.3 km/hr

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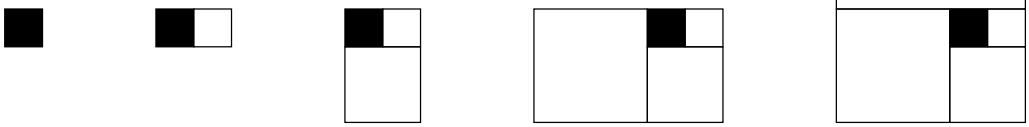
16. In a variant of Sudoku, the objective is to fill in a 4×4 grid so that each column, each row, and each of the four 2×2 boxes contains each of the digits 1, 2, 3, and 4.

What is the value of $X + Y$?

		2	
X	Y		4
4	3		
			3

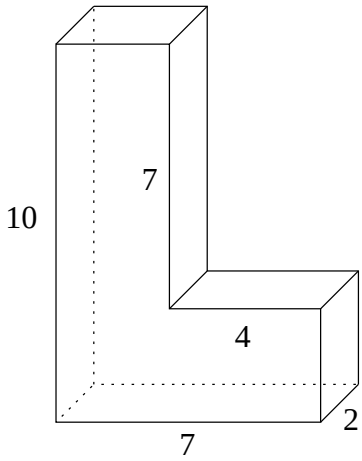
(A) 3 (B) 4 (C) 5 (D) 6 (E) 7

17. The shaded square has area 1 cm^2. Squares are added on as shown in the figures.
What is the total area of the fifth figure?



(A) 26 cm^2 (B) 40 cm^2 (C) 52 cm^2 (D) 60 cm^2 (E) 80 cm^2

18. What is the volume (in cubic units) of this solid?



(A) 76 (B) 84 (C) 116 (D) 126 (E) 140

19. Last Wednesday afternoon, a principal visited every grade seven class in her school and asked the students what they had done for lunch that day.

    Two thirds of the students said that they ate a lunch brought from home. One quarter of the students said that they bought lunch in the school cafeteria. (No students ate two lunches.) The remaining 15 students admitted that they did not eat lunch that day.

    How many grade seven students were in school that Wednesday afternoon?

    (A) 60 (B) 85 (C) 120 (D) 180 (E) 240

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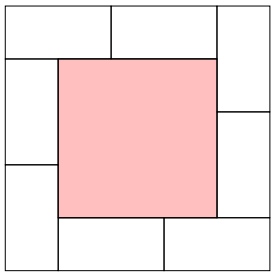
20. In downtown Fredericton there is an old railway bridge crossing the Saint John River. It is now a walking bridge, part of the Trans Canada Trail. The bridge is 581 m long.

    At the same time, Daryl starts walking from one end of the bridge, and Paul starts walking from the other end of the bridge. Daryl walks at 3 km/h, and Paul walks at 4km/h. They walk until they meet each other. Which distance below is closest to the distance Daryl has walked when they meet?

    (A) 249 m (B) 271 m (C) 293 m (D) 312 m (E) 332 m

Part C

21. Francine places eight 2 cm by 1 cm rectangles around the boundary of a square, as shown in the diagram. The square enclosed by the rectangles has an area of 9 cm^2. She then places sixteen 2 cm by 1 cm rectangles around a larger square.
What is the area of the larger square?



    (A) 16 (B) 25 (C) 36 (D) 49 (E) 81

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22. A palindromic number is a number that reads the same forwards and backwards. For example, 12321 is a five digit palindromic number and 567765 is a six digit palindromic number. How many *four* digit palindromic numbers are there?

    (A) 90 (B) 91 (C) 95 (D) 99 (E) 101

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23. X and Y are whole numbers neither of which is divisible by 10. If $X > Y$ and the product of X and Y equals 20 000, what is the value of $X - Y$?

(A) 437 (B) 539 (C) 593 (D) 657 (E) 721

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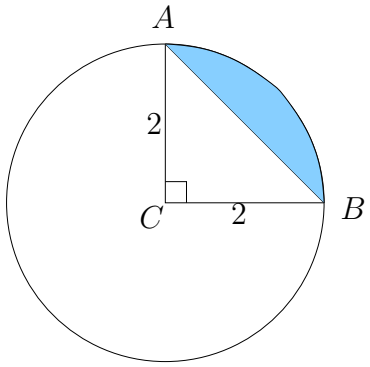
24. In the diagram, the circle has radius 2 cm and angle ACB is 90°. What is the area (in cm^2) of the shaded region?



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

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25. Of the following times, which is the first time after 12:00:00 that the minute and hour hands of my (12 hour) circular clock form an angle greater than 90°?

(A) 12:15:00 (B) 12:15:30 (C) 12:16:00 (D) 12:16:30 (E) 12:17:00

Note: Standard notation for time is hh:mm:ss

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26. At Timmy's cafe, to buy one sandwich, two cups of coffee, and three doughnuts costs \$8.50. One sandwich, one cup of coffee and one doughnut costs \$6.00.

How much does it cost to buy three sandwiches, two cups of coffee and one doughnut?

(A) \$14.25 (B) \$15.50 (C) \$16.25 (D) \$17.00 (E) \$17.75
