For training purposes only!

1. You have 60 minutes to solve 24 multiple choice problems. For each problem, circle only one of the proposed five choices. If you circle more than one choice, your response will be marked as wrong.

2. Record your answers in the response form. Remember that this is the only sheet that is marked, so make sure you have all your answers transferred to the response form before giving it back to the contest supervisor.

3. The problems are arranged in three groups. A correct answer of the first 8 problems is worth 3 points. A correct answer of the problems 9-16 is worth 4 points. A correct answer of the problems 17-24 is worth 5 points. For each incorrect answer, one point is deducted from your score. Each unanswered question is worth 0 points. To avoid negative scores, you start from 24 points. The maximum score possible is 120.

4. The use of external material or aid of any kind is **not permitted**.

5. The figures *are not* drawn to scale. They should be used only for illustration purposes.

6. Remember, you have about 2 to 3 minutes for each problem; hence, if a problem appears to be too difficult, save it for later and move on to another problem.

7. At the end of the allotted time, please **give the response form to the contest supervisor**.

8. Do not forget to pick up your Certificate of Participation on your way out!

Good luck!

Canadian Math Kangaroo Contest team

www.mathkangaroocanada.com

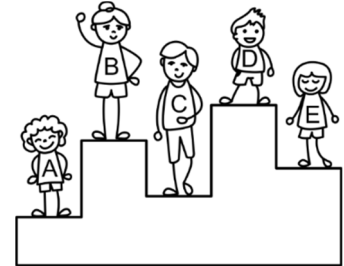**Grade 3-4**   **2019**

Canadian Math Kangaroo Contest

Part A: Each correct answer is worth 3 points

1. The higher the step on the podium, the higher the rank of the runner. Who finished third?
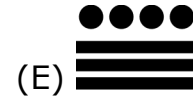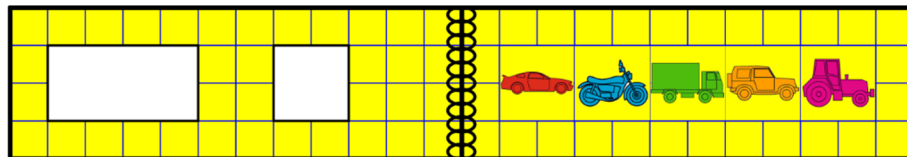(A) A   (B) B   (C) C   (D) D   (E) E

2. In the pictures, each dot stands for 1 and each bar stands for 5. For example, stands for 8. Which picture stands for 12?
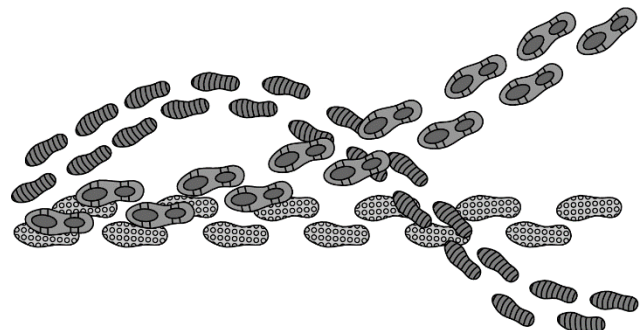(A)   (B)   (C)   (D)   (E)

3. There are two holes in the cover of a book. When the book is open, it looks like this:

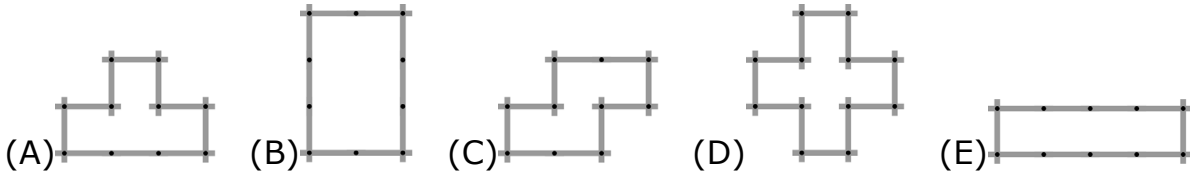   Which pictures does Olaf see through the holes when he closes the book?
(A) , ,   (B) , ,   (C) . .
(D) , ,   (E) , ,

4. Three people walked across a field of snow wearing muddy shoes. In which order did they do this?
(A) (B) (C)
(D) (E)

5. Pia makes shapes with the connected sticks shown in the picture. Which of the following shapes will need more sticks than Pia has?

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

6. Karina cuts out one piece like this ▭▭ from the sheet [grid of card suit symbols]. Which piece can she get?

(A) ♥ ♦   (B) ★ ♠   (C) ★ ★   (D) ★ ♣   (E) ♥ ♥

7. Liam put three cubes on the table. On top of those he put two cylinders. On top of these he put another cube. Which of the following images shows a picture of Liam's construction?

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

8. What number should replace the question mark when all the calculations are completed correctly?

```
                    0
                    +
          2 + 1 =
                +  █  =
                   −    = ?
                =
                9
```
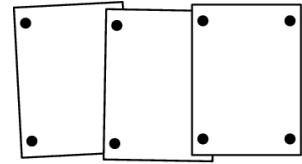
(A) 4   (B) 5   (C) 6   (D) 7   (E) 8

Part B: Each correct answer is worth 4 points

9. Linda pinned up 3 photos in a row on a cork board using 8 pins. Peter wants to pin up 7 photos in the same way. How many pins will he need?
(A) 14   (B) 16   (C) 18   (D) 22   (E) 26

10. Edgar builds a cube of small cubes. He already arranged several of them as shown in the figure. What the smallest number of such cubes he should add in order to finish the work?
(A) 10   (B) 17   (C) 19   (D) 28   (E) 56
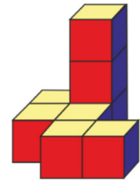
11. Suppose you have exactly 25 square tiles. You use them (without cutting) to tile two square areas, with no tiles left over. If you compare these two square areas, how many more tiles were needed for the larger area compared to the smaller area?
(A) 0   (B) 5   (C) 7   (D) 16   (E) 24
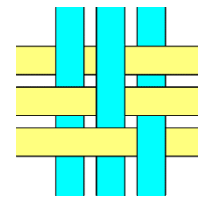
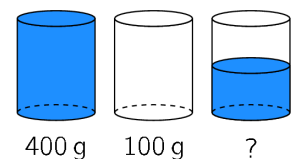**12.** Six strips are woven into a pattern as shown:

What does the pattern look like from the back?

(A)   (B)   (C)   (D)   (E)
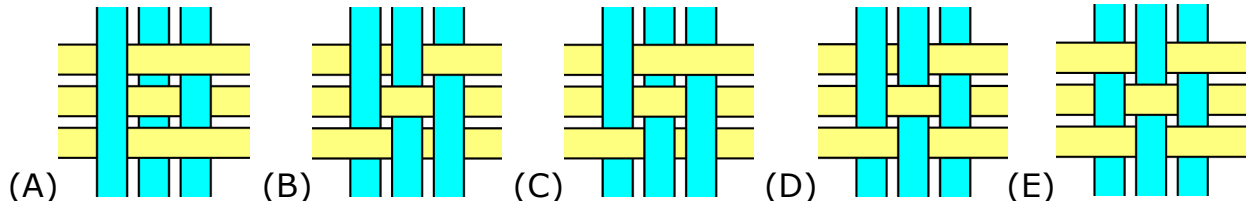
13. A full glass of water weighs 400 grams. An empty glass weighs 100 grams.
How many grams does a half-full glass of water weigh?
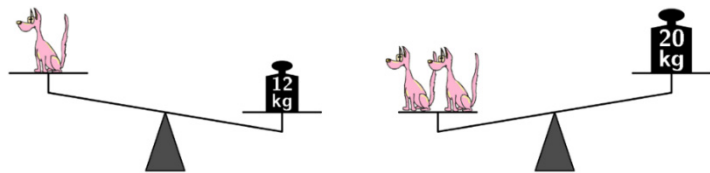(A) 150   (B) 200   (C) 225   (D) 250   (E) 300

400 g   100 g   ?

14. The weight of a dog statue is a whole number. One dog statue weighs less than 12 kg.
How much could one dog statue weigh?
(A) 12 kg (B) 8 kg   (C) 9 kg   (D) 10 kg (E) 11 kg
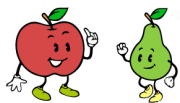
For training purposes only!

15. Steven wants to write each of the digits 2, 0, 1 and 9 in one of the boxes of the addition:

$$\square\ \square + \square\ \boxed{?}$$

He wants to get the largest possible result. Which digit could he write instead of the question mark?

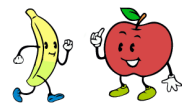(A) Either 0 or 1   (B) Either 0 or 2   (C) Only 0
(D) Only 1   (E) Only 2
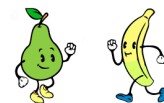
16.

Together we cost 5 cents.   Together we cost 7 cents.   Together we cost 10 cents.   How much do we cost together?

(A) 8   (B) 9   (C) 10   (D) 11   (E) 12
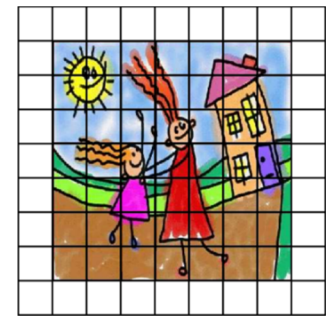
Part C: Each correct answer is worth 5 points

17. Anna used 32 small white squares to frame a 7 by 7 picture. How many of these small white squares does she need to frame a 10 by 10 picture?
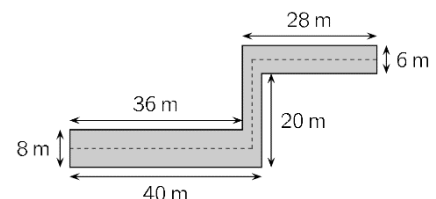(A) 36   (B) 40   (C) 44   (D) 48   (E) 52

18. The pages of a book are numbered 1, 2, 3, 4, 5, and so on. The digit 5 appears exactly 16 times.
What is the maximum number of pages this book could have?
(A) 49   (B) 64   (C) 66   (D) 74   (E) 80

19. A hallway has dimensions shown in the picture. A cat walks on the dashed line along the middle of the hallway. How many metres does the cat walk?

(A) 93   (B) 88   (C) 76   (D) 69   (E) 83

20. In a park there are 15 animals: cows, cats and kangaroos. We know that exactly 10 of the animals are not cows and exactly 8 are not cats. How many kangaroos are in the park?

(A) 2   (B) 3   (C) 4   (D) 10   (E) 18

21. One of five children Alek, Bartek, Czarek, Darek and Edek has eaten a cookie.

Alek says: "I haven't eaten a cookie."
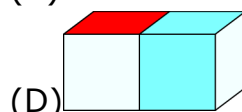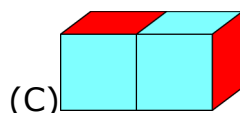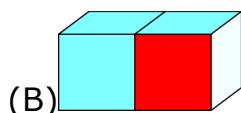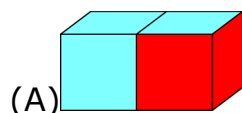
Bartek says: "I have eaten a cookie."

Czarek says: "Edek hasn't eaten a cookie."

Darek says: "I haven't eaten a cookie."

Edek says: "Alek has eaten a cookie."

Only one child lies. Who has eaten the cookie?

(A) Alek   (B) Bartek   (C) Czarek   (D) Darek   (E) Edek

22. The cardboard is folded into a 2×1×1 box.
Which picture shows this box?

(A)   (B)   (C)

(D)   (E)
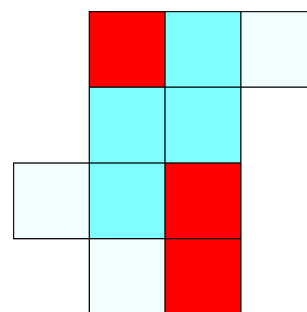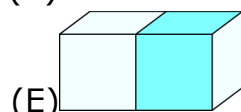
23. Ann and Eve string beads onto an empty thread. Ann starts on the one side of the thread putting 🟨, 🔵, 🔻, and ✸. Eve starts from the other side of the same thread stringing ✸, 🔵, 🔻, and 🟨, consecutively. Only one picture shows a piece of thread with beads strung by both girls. Which one?

(A)   (B)   (C)

(D)   (E)
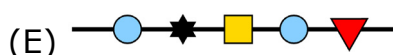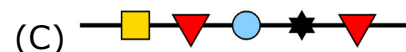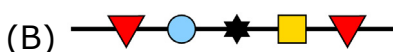
24. Anja has two machines: one can exchange a red token into 9 white tokens, while the other can exchange a white token into 5 red tokens.

Anja has one white token ⭕.

What is the fewest number of exchanges after which Anja can have twice as many red tokens as white tokens?

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