CANADIAN MATH K

2014 Grade 5 and 6 Questions and Answers

Canadian Math K
PROBLEMS

Part A: Each correct answer is worth 3 points

1. A cake weighs 900g. Paul cuts it into 4 pieces. The weight of the largest piece is the same as the total weight of the other three pieces. What is the weight of the largest piece?
    (A) 250 g   (B) 300 g   (C) 400 g   (D) 450 g   (E) 600 g

2. Two big rings – one grey, one white – are linked to each other. Peter, in front of the rings, sees the rings as in the picture:

    Paul is behind the rings. What does he see?

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

3. In the following addition, some of the digits have been replaced by stars.

    $$1\bigstar2$$
    $$1\bigstar3$$
    $$1\bigstar4$$

    $$3\,0\,9$$

    What is the sum of the missing digits?
    (A) 0   (B) 1   (C) 2   (D) 3   (E) 10

4. What is the difference between the smallest 5-digit number and the largest 4-digit number?
    (A) 1   (B) 10   (C) 1111   (D) 9000   (E) 9900

5. A square of perimeter 48 cm is cut into 2 pieces to make a rectangle (see the picture).
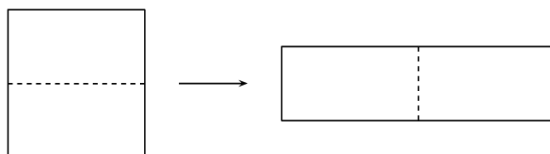
    What is the perimeter of the rectangle?
    (A) 24 cm   (B) 30 cm   (C) 48 cm   (D) 60 cm   (E) 72 cm

6. Katrin has 38 matches. She built a triangle and a square, using all the matches. Each side of the triangle consists of 6 matches. How many matches are in each side of the square?
    (A) 4   (B) 5   (C) 6   (D) 7   (E) 8

7. A Ferris wheel has 32 passenger cabins. If you are sitting in cabin 14 which is currently at the top of the wheel, what is the number of the cabin at the bottom of the wheel?

(A) 26   (B) 27   (C) 28   (D) 30   (E) 32

8. The pearl necklace in the picture contains black pearls and white pearls.

Arno wants to have five of the black pearls. He can only take pearls from either end of the necklace, and so he has to take some of the white pearls also. What is the smallest number of white pearls Arno has to take?

(A) 2   (B) 3   (C) 4   (D) 5   (E) 6

9. Harry participated in a broom flight contest which consisted of five laps. The times when Harry passed the starting point are shown in the table. Which lap took the shortest time?

|	Time
start	09:55
after lap 1	10:26
after lap 2	10:54
after lap 3	11:28
after lap 4	12:03
after lap 5	12:32

(A) the first   (B) the second   (C) the third   (D) the fourth   (E) the fifth

10. It takes Ben 30 minutes to cut a long log of wood into six pieces. How long does it take him to cut another log of wood into nine pieces?

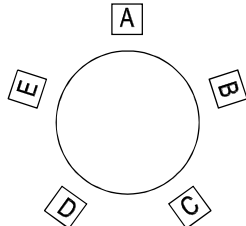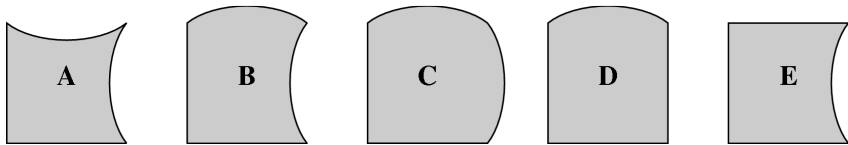(A) 40   (B) 44   (C) 45   (D) 48   (E) 54

Part B: Each correct answer is worth 4 points

11. Which tile must be added to the picture so that the light grey area is as large as the black area?
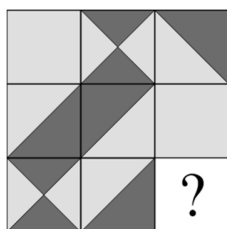
(A)   (B)   (C)   (D)   (E) It is impossible.

12. Henry and John started walking from the same point. Henry went 1 km north, 2 km west, 4 km south and finally 1 km west. John went 1 km east, 4 km south and 4 km west. Which of the following must be the final part of John's walk so that he could reach the same point as Henry?

(A) He has already reached the same point.   (B) 1 km north.   (C) 1 km north-west.
(D) More than 1 km north-west.   (E) 1 km west.

13. The kangaroos A, B, C, D and E were sitting in this order, clockwise, around a circular table. When the bell rang, each kangaroo but one exchanged its position with a neighbour. The order of the kangaroos, clockwise, became A, E, B, D, C. Which kangaroo did not move?

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

14. A square can be formed using four of these five pieces. Which one will not be used?

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

15. A positive integer has three digits. The product of the digits is 135. What is the sum of the digits?

(A) 14   (B) 15   (C) 16   (D) 17   (E) 18

16. In a restaurant, there are 16 tables, each with 3, 4 or 6 chairs. The tables with 3 or 4 chairs can accommodate 36 people. The restaurant can accommodate 72 people. How many tables are there with 3 chairs?

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

17. The points A, B, C, D, E and F lie on a straight line in that order. We know that $AF = 35$, $AC = 12$, $BD = 11$, $CE = 12$ and $DF = 16$. What is the distance BE?

(A) 13   (B) 14   (C) 15   (D) 16   (E) 17

18. Parisa sets her marbles in groups of equal size on the desk. After she arranged the marbles in groups of 3, she found that there were 2 marbles left. Then she arranged the marbles in groups of 5, and again there were 2 marbles left. At least how many more marbles does she need so that there won't be any left when she arranges them in groups of 3 and in groups of 5?

(A) 3   (B) 1   (C) 4   (D) 10   (E) 13

19. A plane takes off from Vienna at 11:00 am local time and arrives in Toronto at 1:00 pm local time. On average, it takes 8 hours for a plane of this type to fly this distance. What time is it in Toronto when it is 7:00 am in Vienna?

(A) 1:00 pm   (B) 1:00 am   (C) 9:00 am   (D) 5:00 am   (E) 3:00 pm

20. What is the greatest number N, which, when divided by 7, has a remainder that is equal to the quotient?

(A) 7   (B) 8   (C) 48   (D) 56   (E) 77

## Part C: Each correct answer is worth 5 points

21. The king and his messengers are travelling from the castle to the summer palace at a speed of 5 km/h. Along the way, the king sends a messenger back to the castle; and one hour later, he sends back another messenger. If the messengers travel at a speed of 10 km/h, what is the time between their arrivals at the castle?
    (A) 30 min   (B) 60 min   (C) 75 min   (D) 90 min   (E) 120 min

22. The 3×3×3 cube in the picture is made of 27 small cubes.
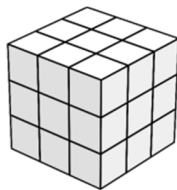
    How many small cubes do you have to remove to see the following result when viewing from the right, from above, and from the front?
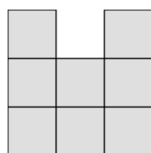
    (A) 4   (B) 5   (C) 6   (D) 7   (E) 9

23. Andy made a playlist with 5 songs (A, B, C, D and E). Song A is 3 minutes long, song B is 2 minutes and 30 seconds, song C is 2 minutes, song D is 1 minute and 30 seconds, and song E is 4 minutes. The songs play in this order in a continuous loop. If Andy left the house when song C was just starting, what song was playing when he got back home 1 hour later?
    (A) A   (B) B   (C) C   (D) D   (E) E

24. Dan entered the numbers from 1 to 9 in the cells of a 3×3 table. He began by placing the numbers 1, 2, 3 and 4 as shown in the picture:


    It so happened that for the number 5, the sum of the numbers in the adjacent cells (having a common side) was equal to 9. What is the sum of the numbers adjacent to the number 6?
   (A) 14   (B) 15   (C) 17   (D) 28   (E) 29

25. Rabbit Vasya loves cabbage and carrots. In a day, he eats either 9 carrots, or 2 heads of cabbage, or 1 head of cabbage and 4 carrots. But some days he only eats grass. Over the last 10 days, Vasya ate a total of 30 carrots and 9 heads of cabbage. On how many of these 10 days did he eat only grass?
   (A) 0   (B) 1   (C) 2   (D) 3   (E) 4

26. Trees grow on only one side of Park Avenue. There are 60 trees in total. Every second tree is a maple, and every third tree is either a linden or a maple. The remaining trees are birches. How many birches are there?

(A) 10   (B) 15   (C) 20   (D) 24   (E) 30

27. Granny has 10 grandchildren, all of different ages. Alice is the eldest. The sum of the ages of all grandchildren is 180. At least how old is Alice?

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

28. A thin colourful ribbon is stuck on a transparent plastic cube (see the picture).
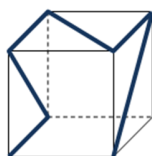
Which of the following pictures does not represent the cube as seen from any perspective?

(A)   (B)   (C)   (D)   (E)
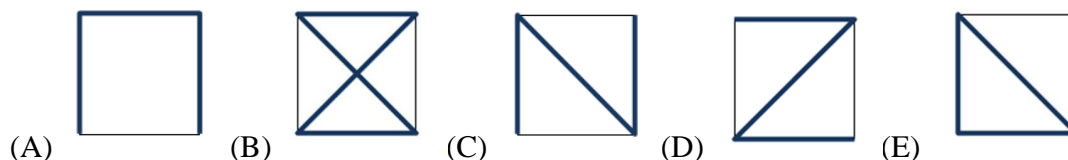
29. Bob is going to visit four cities. He will start from and end up in his home town. The figure shows a map of the regions with the cities. The roads are only along the grid lines.
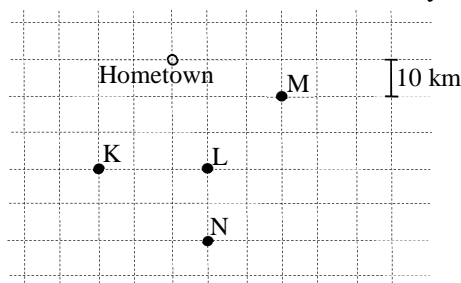
Bob wants to make the trip as short as possible. Which route should Bob follow?

(A) M,L,N,K (B) K,L,M,N (C) N,M,L,K (D) L,N,K,M (E) K,L,N,M

30. A rectangle with a perimeter of 34 cm was divided into two smaller rectangles with perimeters 28 cm and 30 cm, as shown in the figure.
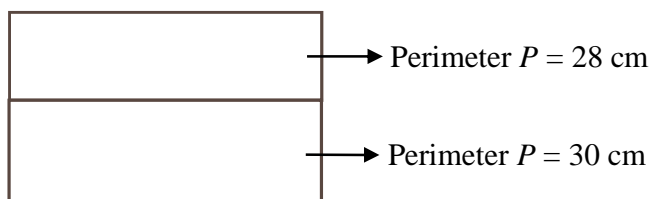
What is the area of the big rectangle?

(A) 88 cm^2 (B) 120 cm^2 (C) 187 cm^2 (D) 60 cm^2 (E) 49 cm^2