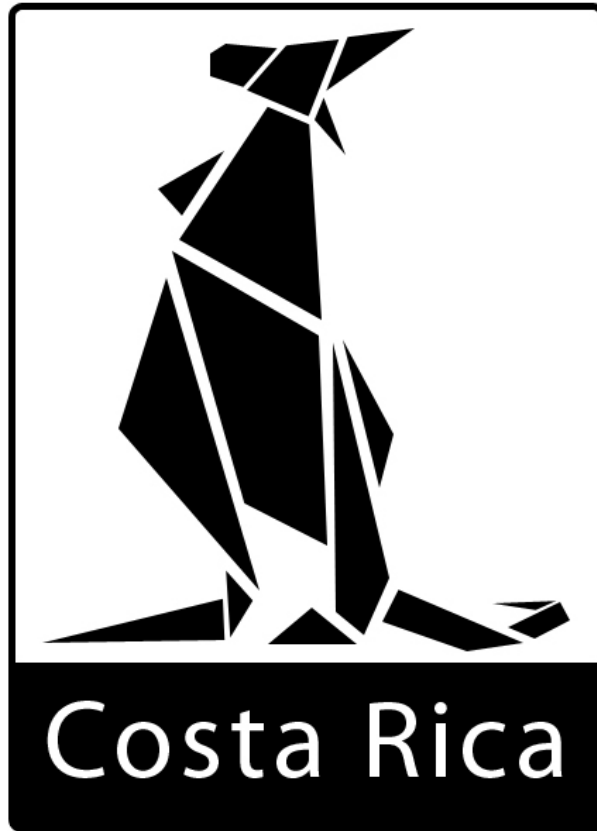# Kangourou Sans Frontières
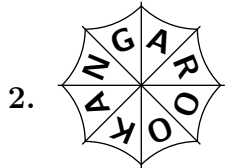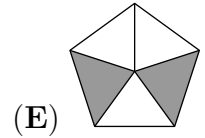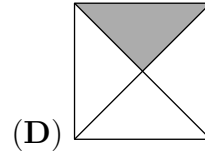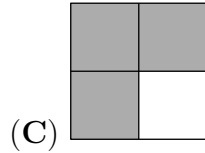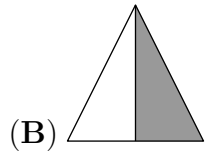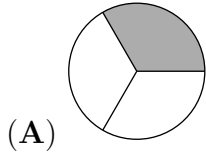

Benjamin Test
Fifth Grade

Name:_____

Costa Rica 2015
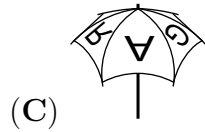
3 points

1. Which figure has one third shaded?

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

2.

My umbrella has KANGAROO written on top. It is shown in the picture. Which of the following pictures does not show my umbrella?

(A) (B) (C) (D) (E)
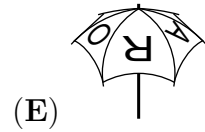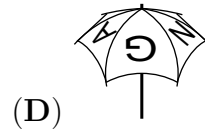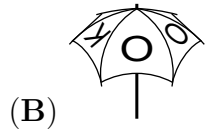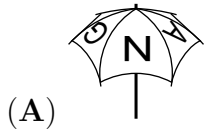
3. Sam painted the 9 squares with the colours black, white and grey as shown. At least how many squares does he need to repaint so that no two squares with a common side have the same colour?
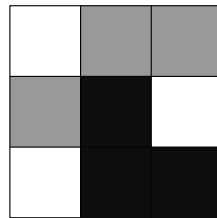
(A) 2 (B) 3 (C) 4 (D) 5 (E) 6

4. There are 10 ducks. 5 of these ducks lay an egg every day. The other 5 lay an egg every second day. How many eggs do the 10 ducks lay in a period of 10 days?

(A) 75 (B) 60 (C) 50 (D) 25 (E) 10

5. Luis has 7 apples and 2 bananas. He gives 2 apples to Yuri who, in return gives bananas to Luis. Then Luis has as many apples as bananas. How many bananas did Yuri give to Luis?

(A) 2 (B) 3 (C) 4 (D) 5 (E) 7

6. Which of the following fractions is smaller than 2?

(A) $\dfrac{19}{8}$ (B) $\dfrac{20}{9}$ (C) $\dfrac{21}{10}$ (D) $\dfrac{22}{11}$ (E) $\dfrac{23}{12}$

7.

The figure shows a board where each small square has an area of 4 cm². What is the length of the thick black line?

(**A**) 16 cm   (**B**) 18 cm   (**C**) 20 cm   (**D**) 21 cm   (**E**) 23 cm

8.

How much does Dita weigh?

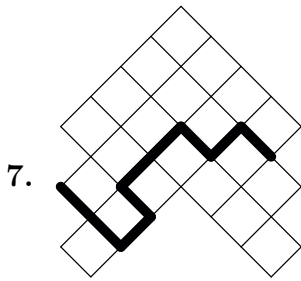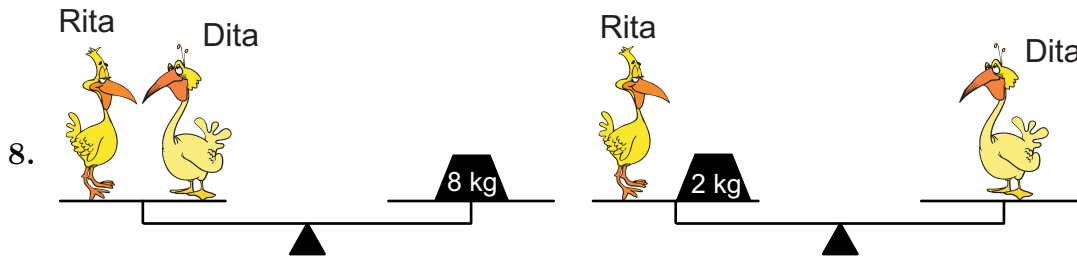(**A**) 2 kg   (**B**) 3 kg   (**C**) 4 kg   (**D**) 5 kg   (**E**) 6 kg

9. Peter looks through a magnifying glass at different parts of a drawing on a wall.
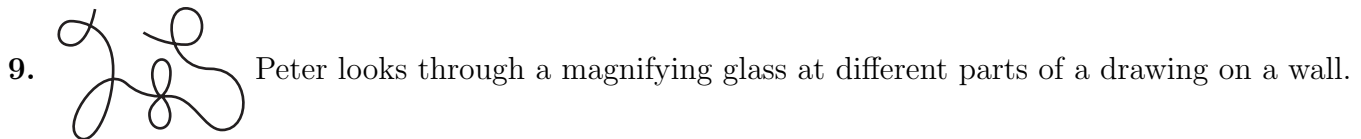
Which is the picture that he cannot see?

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

10. Each plant in John's garden has either 5 leaves, or 2 leaves and 1 flower. In total, the plants have 6 flowers and 32 leaves. How many plants are there?

(**A**) 10   (**B**) 12   (**C**) 13   (**D**) 15   (**E**) 16

4 points

11. Every day Mary writes down the date and calculates the sum of the digits written. For example, on March 19 she writes 19.03 and calculates $1 + 9 + 0 + 3 = 13$. What is the largest sum that she calculates during a year?

(**A**) 7   (**B**) 13   (**C**) 14   (**D**) 16   (**E**) 20

12. Alva has 4 paper strips of the same length. She glues 2 of them together with a 10 cm overlap, and gets a strip 50 cm long. With the other two paper strips, she wants to make a strip 56 cm long. How long should the overlap be?
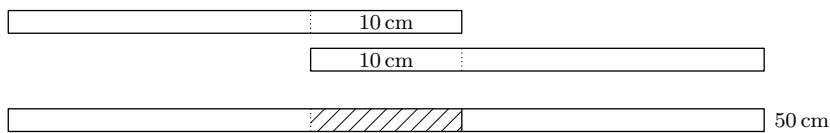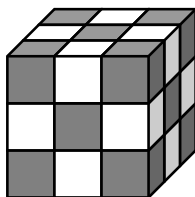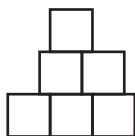

(**A**) 4 cm   (**B**) 6 cm   (**C**) 8 cm   (**D**) 10 cm   (**E**) 12 cm

13. Jack built a cube using 27 small cubes which are colored either black or white (see figure). No two of the small cubes which are colored in the same color have a common face. How many white cubes did Jack use?

(**A**) 10   (**B**) 12   (**C**) 13   (**D**) 14   (**E**) 15

14. Tom used 6 squares with side 1 to form the shape in the picture. What is the perimeter of the shape?

(**A**) 9   (**B**) 10   (**C**) 11   (**D**) 12   (**E**) 13

15. The rectangle $ABCD$ in the picture consists of 4 equal rectangles. If BC has length 10 cm, what is the length of AB?
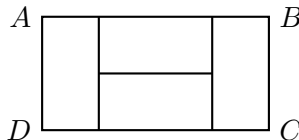
(**A**) 40 cm   (**B**) 30 cm   (**C**) 20 cm   (**D**) 10 cm   (**E**) 5 cm

16. Which of these five nets cannot be the net of a pyramid ?

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

4
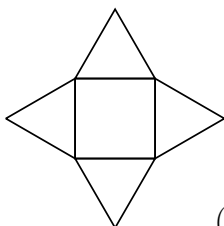
17. On Jump Street, there are 9 houses in a row. At least one person lives in each house. Any two neighbouring houses together are inhabited by at most six people. What is the largest number of people that could be living on Jump Street?
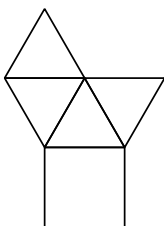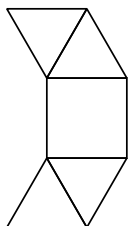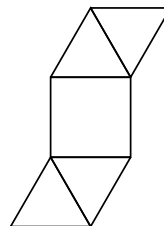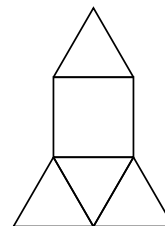
(**A**) 23 (**B**) 25 (**C**) 27 (**D**) 29 (**E**) 31

18. Lucy and her mother were both born in January. Today, March 19 2015, Lucy adds the year of her birth, the year of her mother's birth, her age, and her mother's age. What result does she get?

(**A**) 4028 (**B**) 4029 (**C**) 4030 (**D**) 4031 (**E**) 4032

19. The area of a rectangle is $12 \, \text{cm}^2$. The lengths of its sides are natural numbers. Then, the perimeter of this rectangle could be:
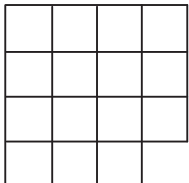
(**A**) 20 cm (**B**) 26 cm (**C**) 28 cm (**D**) 32 cm (**E**) 48 cm
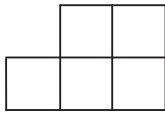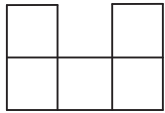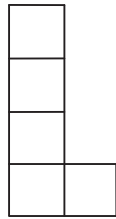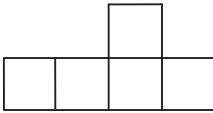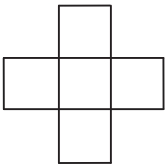
20. We have three transparent sheets with the following patterns. We can only rotate the three sheets without turning over. Then we put them exactly on top of each other. What is the maximum possible number of black squares seen in the obtained square if looked at from above?
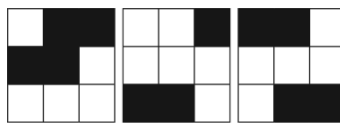
(**A**) 5 (**B**) 6 (**C**) 7 (**D**) 8 (**E**) 9

5 points

21. The figure is divided into three identical pieces. What did the pieces look like?

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

22. Each of the 9 segments in the figure is to be coloured either blue, green or red. The sides of every triangle are to have different colours. Three of the segments have already been coloured, as shown. What colour can the segment marked with x have?
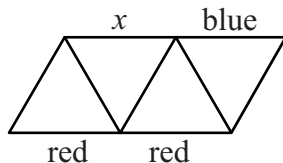
(**A**) only blue   (**B**) only green   (**C**) only red

(**D**) either blue, green or red   (**E**) such a colouring is not possible

23. The numbers 2, 3, 5, 6 and 7 are written in the squares of the cross (see fig.) so that the sum of the numbers in the row is equal to the sum of the numbers in the column. Which of the numbers can be written in the center square of the cross?

(**A**) only 3   (**B**) only 5   (**C**) only 7   (**D**) 5 or 7   (**E**) 3, 5 or 7

24. Peter has ten balls, numbered from 0 to 9. He distributed these balls among three friends: John got three balls, George four and Ann three. Then he asked each of his friends to 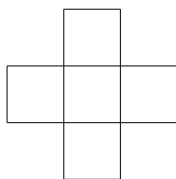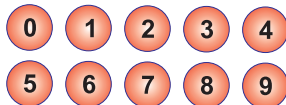multiply the numbers on the balls they got and the results were: 0 for John, 72 for George and 90 for Ann. What is the sum of the numbers on the balls that John received?

(**A**) 11   (**B**) 12   (**C**) 13   (**D**) 14   (**E**) 15

25.
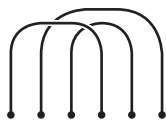
Three ropes are laid down on the floor as shown. You can make one big, complete loop with three other pieces of rope. Which of the ropes shown will give you one big loop?

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

26. In a bag there are 3 green apples, 5 yellow apples, 7 green pears and 2 yellow pears. Simon randomly takes fruits out of the bag one by one. How many fruits must he take out in order to be sure that he has at least one apple and one pear of the same colour?

(**A**) 9   (**B**) 10   (**C**) 11   (**D**) 12   (**E**) 13

27. A new chess piece "kangaroo" has been introduced. In each move, it jumps either 3 squares vertically and 1 horizontally, or 3 squares horizontally and 1 vertically, as shown in the picture. What is the minimum number of moves the kangaroo needs in order to go from its current position to the square marked with A?
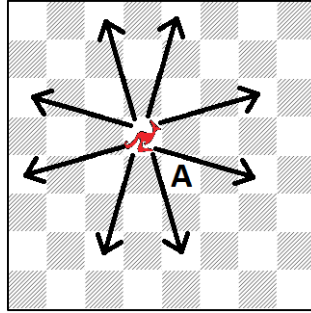
(**A**) 2   (**B**) 3   (**C**) 4   (**D**) 5   (**E**) 6

28. Jane bought 3 toys. For the first toy she paid half of her money and 1 euro more. For the second toy she paid half of the remaining money and 2 euros more. Finally, for the third toy she paid half of the remaining money and 3 euros more, thus spending all of her money. How much euros did she have initially?
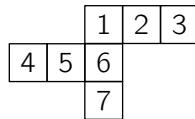
(**A**) 36   (**B**) 45   (**C**) 34   (**D**) 65   (**E**) 100

29. Carla wants to fold a cube from a paper net. By mistake she drew 7 squares on her sheet instead of 6 squares. Which square can she remove so that the figure remains connected and Carla can fold a cube from it?

(**A**) only 4   (**B**) only 7   (**C**) only 3 or 4

(**D**) only 3 or 7   (**E**) only 3, 4 or 7

30. The number 100 is multiplied either by 2 or by 3, then the result is increased either by 1 or by 2, and then the new result is divided either by 3 or by 4. The final result is a natural number. What is this final result?

(**A**) 50   (**B**) 51   (**C**) 67   (**D**) 68

(**E**) There is more than one possible final result.

Answers

Costa Rica

Name:

Institution: Grade:

01.	A	B	C	D	E
02.	A	B	C	D	E
03.	A	B	C	D	E
04.	A	B	C	D	E
05.	A	B	C	D	E
06.	A	B	C	D	E
07.	A	B	C	D	E
08.	A	B	C	D	E
09.	A	B	C	D	E
10.	A	B	C	D	E
11.	A	B	C	D	E
12.	A	B	C	D	E
13.	A	B	C	D	E
14.	A	B	C	D	E
15.	A	B	C	D	E

16.	A	B	C	D	E
17.	A	B	C	D	E
18.	A	B	C	D	E
19.	A	B	C	D	E
20.	A	B	C	D	E
21.	A	B	C	D	E
22.	A	B	C	D	E
23.	A	B	C	D	E
24.	A	B	C	D	E
25.	A	B	C	D	E
26.	A	B	C	D	E
27.	A	B	C	D	E
28.	A	B	C	D	E
29.	A	B	C	D	E
30.	A	B	C	D	E