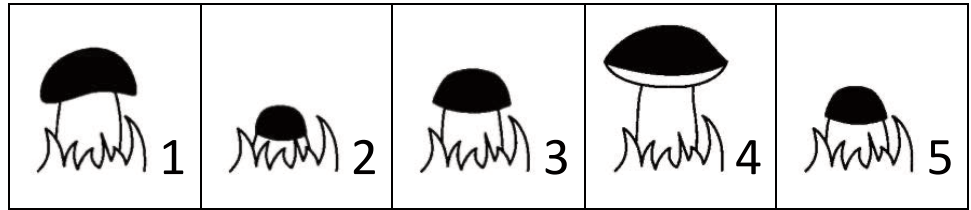


Canguru de Matemática Brasil – Level E – 2020 – Second Application

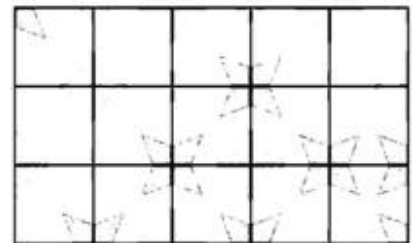
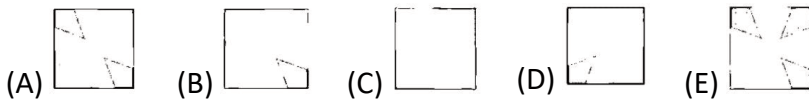
3 points

1. A mushroom grows up every day. For five days Maria took a picture of this mushroom, but she wrongly ordered the photos beside. What is the sequence of photos that correctly shows the mushroom growth, from left to right?



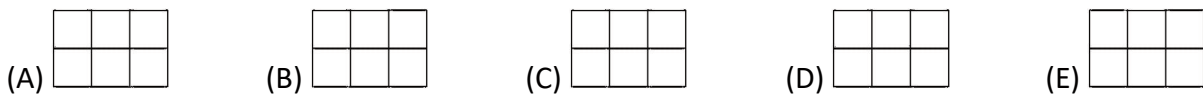
- (A) 2-5-3-1- 4 (B) 2-3-4-5-1 (C) 5-4-3-2-1 (D) 1-2-3-4-5 (E) 2-3-5-1-4

2. Which of the tiles below is **NOT** part of the wall next door?

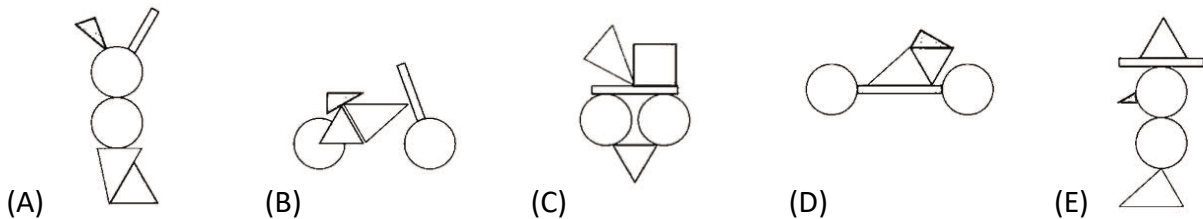
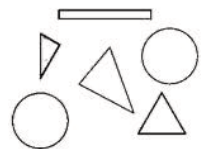


3. John paints the squares of the board next to it if the result of the calculation inside them is 24. How did the painting of the board look?

| | | |
|----------|--------------|----------|
| $28 - 4$ | 4×6 | $18 + 6$ |
| $19 + 6$ | 8×3 | $29 - 6$ |



4. Which of the following pictures can you **NOT** do with all the pieces beside?

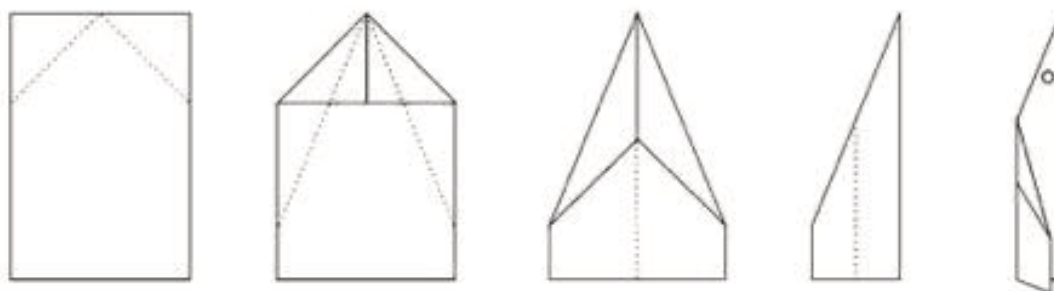


5. Eli drew a board on the floor with nine squares and wrote a number on each of them, starting from 1 and adding 3 units to each new number he wrote, until he filled the board. In the picture, three of the numbers that Eli wrote appear. What number below can be one of the numbers she wrote in the colored box?

| | | |
|----|---|--|
| 1 | | |
| | 4 | |
| 10 | | |

- (A) 10 (B) 14 (C) 17 (D) 20 (E) 22

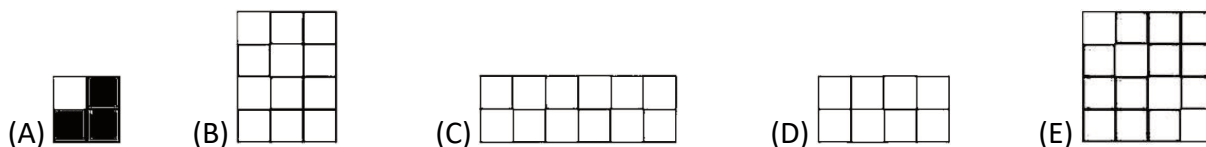
6. Paulo took a rectangular sheet of paper, yellow on one side and green on the other side and, with several folds shown in the dotted lines in the figure below, made a little paper plane. To give the airplane a charm, Paulo made a circular hole, marked on the last figure.



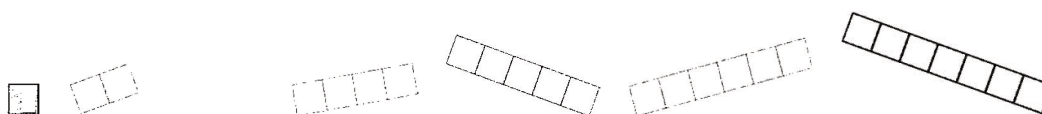
After playing a lot with the plane, Paulo unfolded the sheet and realized that there were several holes in it. How many holes did he count?

- (A) 2 (B) 4 (C) 6 (D) 8 (E) 16

7. Five children should paint three quarters of the total amount of the little squares on their trays. One of the children A, B, C, D or E was wrong. Which one?



8. Gaspar has these seven different pieces, formed by equal little squares.

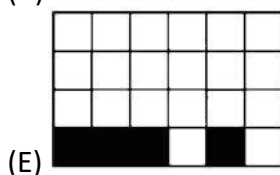
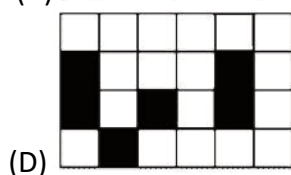
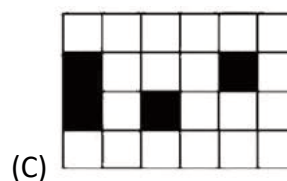
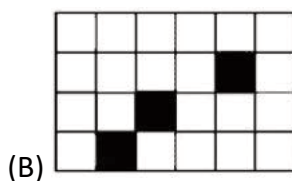
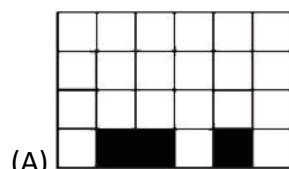
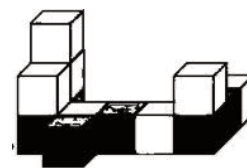


He uses all these pieces to assemble rectangles with different perimeters, that is, with different shapes. How many different perimeters can he find?

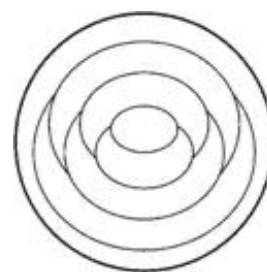
- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

4 points

9. Janaína made the construction on a grid, using some lighted colored cubes and others darker. Looking from above the construction, what can she see?

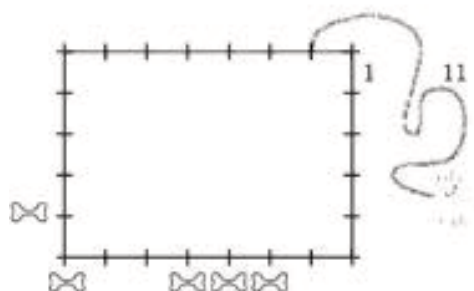


10. Cynthia paints each region of the figure in a single color: red, blue or yellow. She paints with different colors the regions that touch each other. In how many different ways can Cynthia paint the figure?



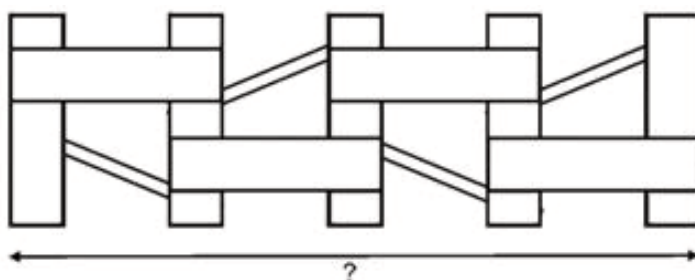
- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

11. Denis ties his dog, using an 11-meter rope, one meter away from a corner of about 7 meters by 5 meters, as illustrated. Denis places 5 bones near the fence, as shown in the picture. How many bones can the dog catch?



- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

12. Luana builds a fence using pieces of wood 2 meters long by half a meter wide, just like this one: . The picture beside shows this fence, after it is ready. How long is the fence, in meters?

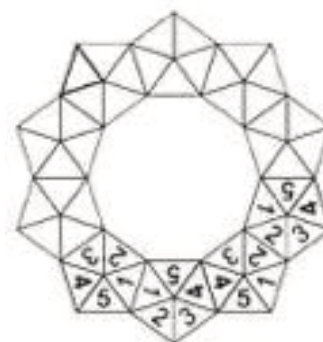


- (A) 6 (B) 6,5 (C) 7 (D) 7,5 (E) 8

13. Amelia built a crown using 10 copies of this piece

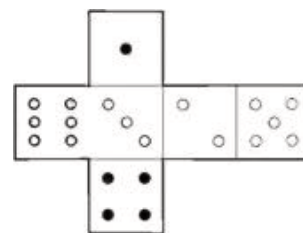


The parts were joined together so that the sides in contact had the same number, as shown in the picture, where four parts are visible. What is the number that appears in the colored triangle?



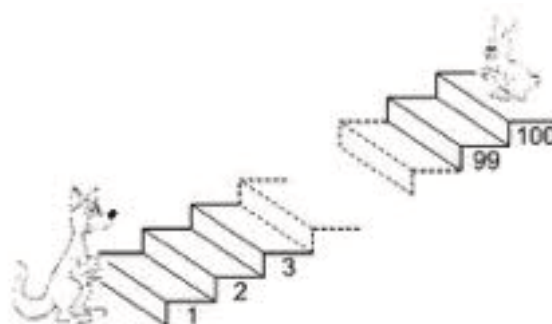
- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

14. Julia drew the picture on the side of a cardboard sheet, cut, folded and glued to form a cube. Which of the cubes below can be the one she did?



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

15. Whenever the kangaroo goes up seven steps, the rabbit goes down three steps. When the kangaroo is on step number 56, on which step will the rabbit be?



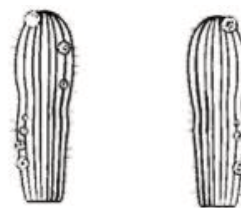
- (A) 73 (B) 76 (C) 79 (D) 82 (E) 85

16. Ana, Bia and Cris have, together, 100 reais. They go to the movies and each one pays their own entrance fee. Ana had twice as much as each of her friends before they paid the entrance fee. Now Ana has three times what the two friends have together. How much did the entrance to the movie cost?

- (A) R\$ 8,00 (B) R\$ 10,00 (C) RS 12,00 (D) R\$ 15,00 (E) R\$ 20,00

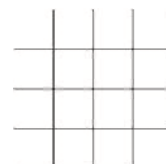
5 points

17. There are three flowers on the back of the left cactus. In total, the cactus on the right has six more flowers than the cactus on the left. How many flowers are on the back of the right cactus?



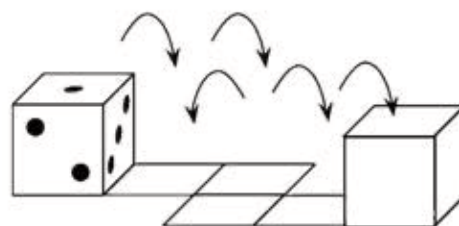
- (A) 9 (B) 10 (C) 11 (D) 12 (E) 14

18. The 4 x 4 grid without a little square, shown beside, was divided into three equal pieces. Which of the following figures represents one of these pieces?



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

19. The sum of the points on the opposite sides of a common dice is 7. This dice is placed in the first square as shown in the figure, and then rolled as shown in the figure, to the fifth square. When the dice reach the last square, what is the product of the numbers of points shown on the two colored vertical faces?

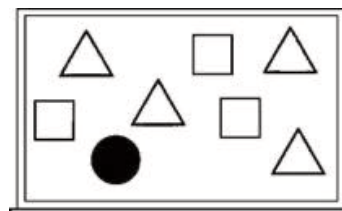


- (A) 10 (B) 12 (C) 15 (D) 18 (E) 24

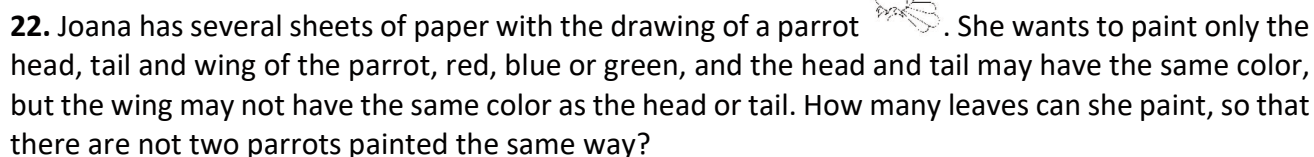
20. Five friends decided to spend their vacations together. In a conversation, Adam said, "Yesterday was Wednesday." Beto said, "Tomorrow will be Friday". Carlos said: "The day before yesterday was Tuesday". David then said, "The day after tomorrow is Saturday". Finally, it was Eli's turn: "Today is Monday". One of them was wrong. Who was wrong?

- (A) Adam (B) Beto (C) Carlos (D) David (E) Eli

21. The teacher wrote the numbers 1 to 8 on the board. Then he covered the numbers with triangles, squares and a circle. The sum of the numbers covered with the triangles equals the sum of the numbers covered with the squares and the number covered with the circle is a quarter of that sum. What is the sum of the numbers covered with the triangles and the circle?



- (A) 18 (B) 19 (C) 20 (D) 21 (E) 22



- 23.** Jonas and Elias went to the beach for their vacation, where they had ice cream every day. The ice cream they had, had two or three balls. On the last day of vacation, Jonas and Elias had 23 and 19 ice cream balls, respectively. At least how many days they were on vacation?

- 24.** The Kangaroo Hotel has 30 floors numbered from 1 to 30 and each floor has 20 rooms numbered from 1 to 20. The code to enter the room is formed by joining the floor number with the room number, in that order. But this code can be confusing, as shown in the picture. Note that the code 101 is not confusing, as it can only refer to floor 10 and room 1 and never to floor 1 and room 1, as it has the code 11. How many codes are confusing, including the one in the figure?

