Canguro Matemático Costarricense
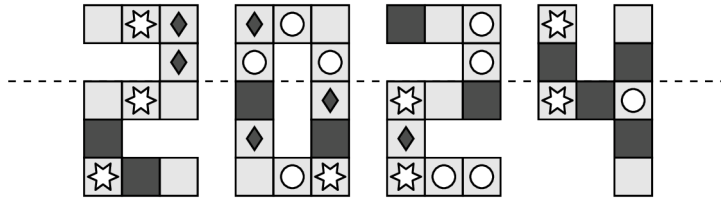
Benjamin Test
Fifth grade

Name of the student:_____
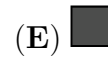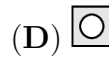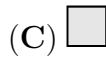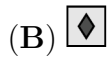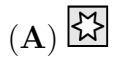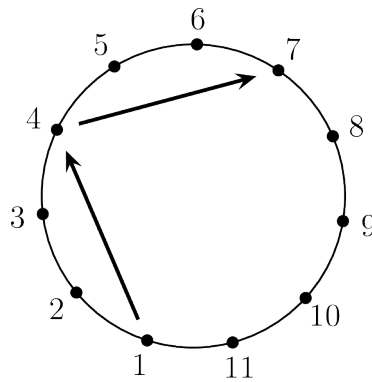
Name of the institution:_____

3 points

1. Alina folds the image below along the dashed line.

Which of the following squares folds onto an identical one?

(**A**) ✩　　　(**B**) ◆　　　(**C**) ▢　　　(**D**) ◯　　　(**E**) ■

2. Soccer players numbered 1 to 11 stand in a circle. Each player kicks the ball to the third player on their left. Player 1 starts. This kicking pattern continues until a player **has** the ball for the second time.

What is the number of the player who **kicked** the ball last?

(**A**) 7　　　　(**B**) 8　　　　(**C**) 9　　　　(**D**) 10　　　　(**E**) 11

3. Mohammad wrote 3 consecutive 4-digit numbers in a row. His sister erased some digits. (For example, 213, 214, 215 are 3 consecutive 3-digit numbers.)

$$\_\_\_7, \ \_898, \ 48\_\_$$

What are the missing digits (from left to right)?
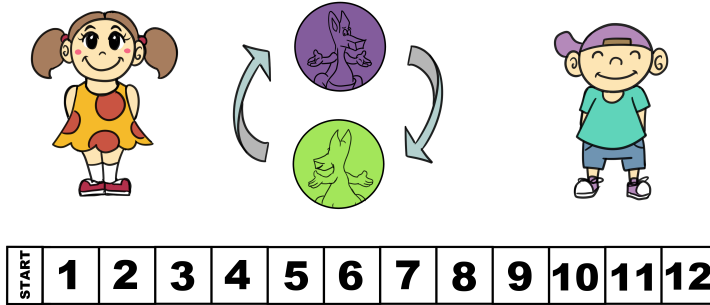
(**A**) 389, 3, 99　　(**B**) 489, 3, 96　　(**C**) 489, 4, 98　　(**D**) 489, 4, 99　　(**E**) 488, 4, 99

4. Antonia and Lucian toss a coin.

If the child sees the face of the Kangaroo side, the child advances 3 steps.
If the child sees the back of the Kangaroo side, the child goes back 1 step or stays at the starting position.
Both children start in the box with the name start and each tossed the coin 4 times.
Antonia advanced to number 4 and Lucian advanced to number 8.
How many times in total did they see the back of the Kangaroo side of the coin?

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

**5.** Ada has built a tower of 8 discs, as in the picture.

Ada removes the second disc from the bottom of this tower.
Then she removes the third disc from the bottom of the new tower.
Then she removes the fourth disc from the bottom of the new tower. Then she removes the fifth disc from the bottom of the new tower.
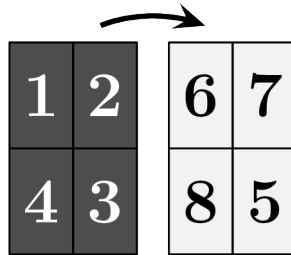Which tower does Ada end up with?

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

6. 7 cards, numbered 1 to 7, are placed in 4 overlapping rings. The sum of the numbers in each ring is 10.
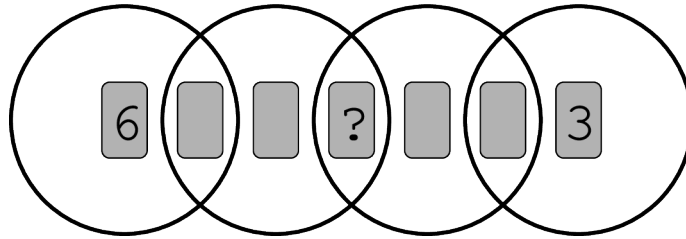
Which number is under the question mark?

(**A**) 1   (**B**) 2   (**C**) 4   (**D**) 5   (**E**) 7

7. John writes the numbers 1 to 4 on a sheet. Then he flips the sheet and writes the numbers 5 to 8, as shown.

After that, he cuts the sheet into 4 rectangular cards and puts them in a row:
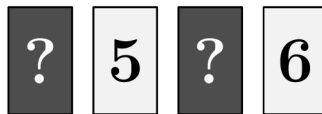
What is the sum of the numbers represented by the question marks?

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

8. A student has 3 cards with numbers on them. Their sum is 782. Unfortunately, a worm ate part of each card.

What is the sum of the 3 missing digits?

(**A**) 8   (**B**) 9   (**C**) 10   (**D**) 11   (**E**) 12

9. There are 60 pupils on a trip. When they line up, the colours of their reflective vests follow the pattern:

yellow, green, yellow, green...

The colours of their backpacks follow a different pattern:

red, brown, orange, red, brown, orange...

How many pupils with a yellow reflective vest also have an orange backpack?

(**A**) 3   (**B**) 4   (**C**) 6   (**D**) 8   (**E**) 10

10. In the following calculations, the same digits are hidden under the same figures. Different digits are hidden under different figures.

What is the value of △ × ● × ■?

(**A**) 0   (**B**) 15   (**C**) 18   (**D**) 28   (**E**) 30

4 points

11. The picture shows the first few squares of a hopping game.

Every fourth square in the game has the same image in it. Mia is playing the game. In which of the following squares will Mia land only on her right foot?

(**A**) the 10th   (**B**) the 15th   (**C**) the 20th   (**D**) the 22nd   (**E**) the 23rd

12. Sasha created a secret alphabet. He writes "basil" as ⊙∪∩ and "red" as . How does he write "bread"?

(A)

(B)

(C)

(D)

(E)

13.
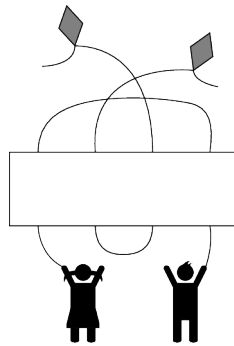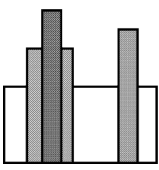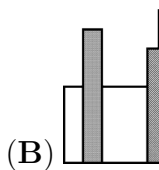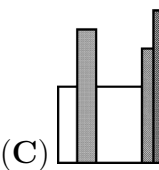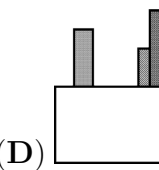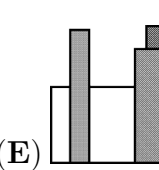
Which of the strips should be placed in the space in the picture so that each child is connected to a different kite?

(A)

(B)

(C)

(D)

(E)

14. Dina has set up her three bricks on the floor behind a wall. When seen from the front, the bricks look like this
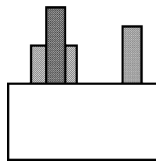
How do the bricks look from the back?.

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

15. Mona wants to draw the figure shown without lifting up her pencil from the paper.The lengths of the three segments are given.
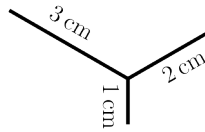
What is the shortest total length she could draw?

(**A**) 6cm   (**B**) 7cm   (**C**) 8cm   (**D**) 9cm   (**E**) 10cm

16. There are 2 wheels each marked with 7 positions. The wheels spin in opposite directions and each makes a complete turn in seven minutes. At the end of each minute, each letter lies exactly in front of a number. The picture shows the first two positions of the wheels and we can see that initially letter A is in front of number 1, letter B is in front of number 2, and so on. The wheels turn until letter C is in front of number 2.

0 min   1 min
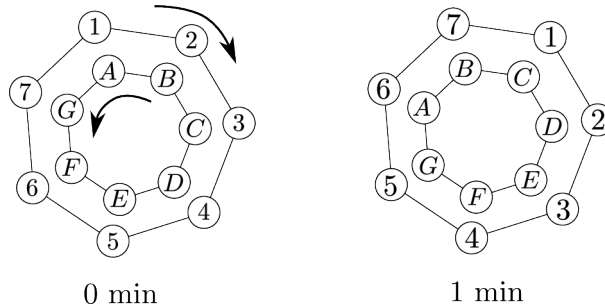
Which number is letter F in front of that point?

(**A**) 1   (**B**) 4   (**C**) 5   (**D**) 6   (**E**) 7

17. There are six boxes on a truck as shown.
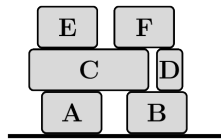
A worker puts them on the floor. He takes one box at a time, provided that box does not have another box on top of it. He places his box on the ground or on top of another box. Which of the following stacks could he not build?
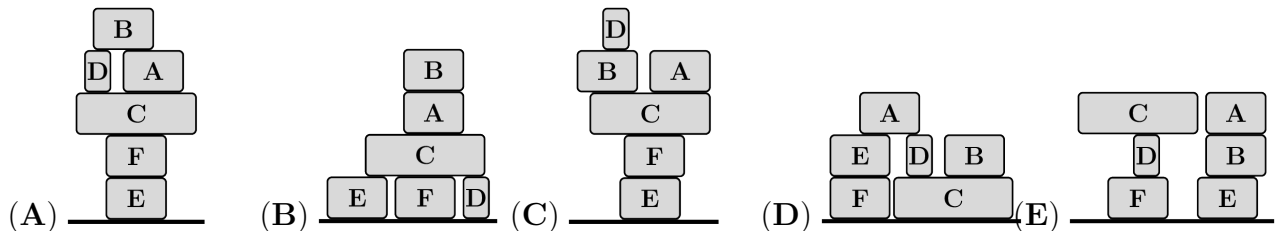
18. The figure below shows a beehive with 9 cells. There is honey in some cells. The number in each cell shows how many neighbouring cells contain honey. Neighbouring cells have a side in common.
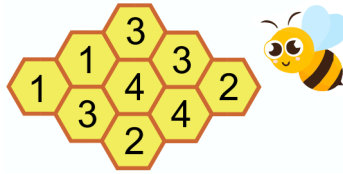
How many cells contain honey?

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

19. Three girls go to the tray one after the other and take some cookies.

One of the girls takes all the hearts available on the tray.
Another girl takes all the white cookies available on the tray.
Another girl takes all the large cookies available on the tray.
However, they do not necessarily take the cookies in this order.

One girl takes 3 cookies, one takes 6 cookies and one takes 7 cookies. Which of the following sets of cookies does one of these girls take?

(**A**)   (**B**)   (**C**)

(**D**)   (**E**)

20. There are 2 types of blocks: white and red . A small cube can be made of 4 white blocks or of 1 white and 1 red block. The large cube shown in the picture is made of small cubes.
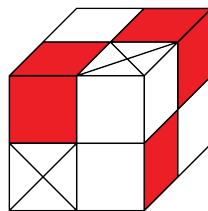
What is the smallest number of white blocks needed to make the large cube?

(**A**) 8 (**B**) 11 (**C**) 13 (**D**) 14 (**E**) 23

5 points

21. Pieter has a package of 445 g and the following eight weights:

500 200 200 100 50 20 20 5
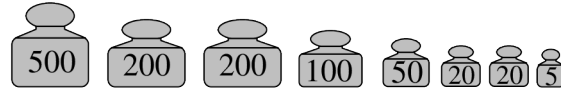
He put the package on the scale, as shown. What is the minimum number of weights he needs to balance the scale?
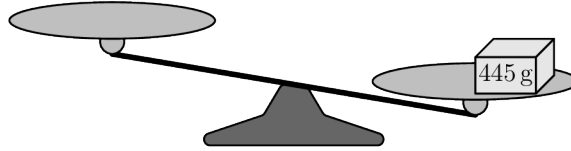
(**A**) 2   (**B**) 3   (**C**) 4   (**D**) 5   (**E**) 6

22. The rooms in the hotel are numbered in ascending order, starting from 1. No number is omitted. Kangaroo counted the digits in the rooms and found digit 2, 14 times and digit 5, 3 times. What is the largest number of rooms there can be in the hotel?

(**A**) 25   (**B**) 26   (**C**) 34   (**D**) 35   (**E**) 41

23. Two identical rectangles, each with an area of 18, overlap to form a new rectangle, as shown. The new rectangle can be divided into three identical squares.
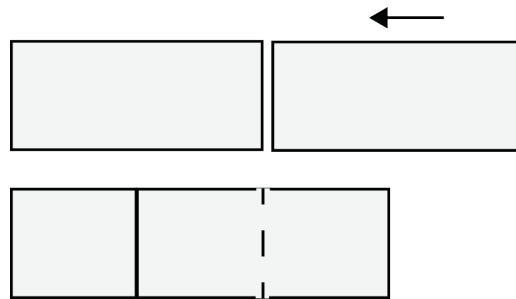
What is the area of the new rectangle?

(**A**) 24   (**B**) 27   (**C**) 30   (**D**) 32   (**E**) 36

24. A student had five boxes of chocolates labelled A, B, C, D and E. The chocolates in the boxes have been given numbers according to their flavour, as shown.
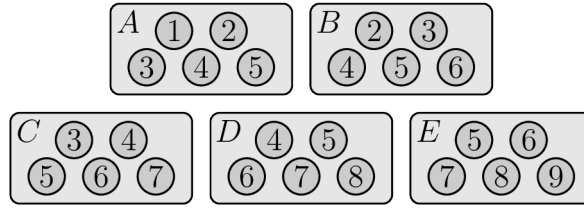
He ate most of the chocolates. The picture below shows what was left.

What was the label of the box marked X?

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

25. Rosa draws several identical rectangles to make the following picture.
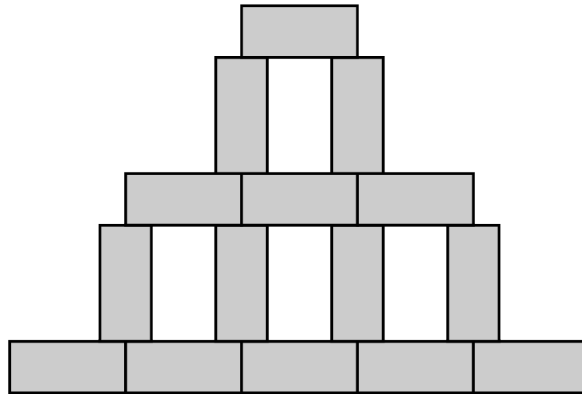
The width and the height of the picture are 45 cm and 30 cm respectively. What is the area of one rectangle?

   (**A**) 24 cm^2 (**B**) 27 cm^2 (**C**) 30 cm^2 (**D**) 33 cm^2 (**E**) 36 cm^2

26. The Braille system for blind people, when written down, has the digits 0 to 9 represented by a set of black or white dots, as shown.
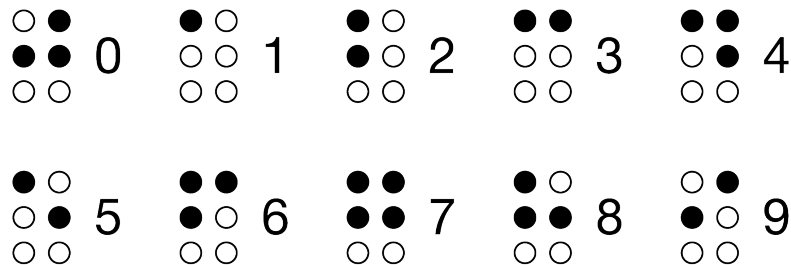
How many different two-digit numbers contain exactly five black dots?

   (**A**) 16   (**B**) 18   (**C**) 30   (**D**) 32   (**E**) 34

27. Christian has cut four small squares from the corners of the larger square, so that the remaining area is half of the area of the original square. The side-lenghts of the small squares are shown in the diagram.
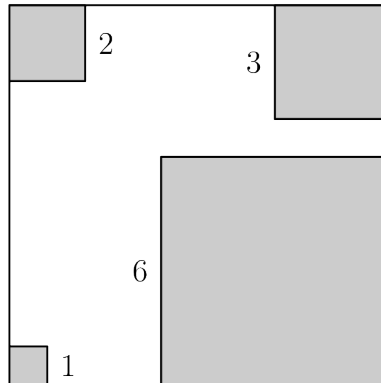
What is the perimeter of the remaining shape?

(**A**) 36   (**B**) 40   (**C**) 44   (**D**) 48   (**E**) 52

28. Dimitri wants to fold the net shown to make a cube.
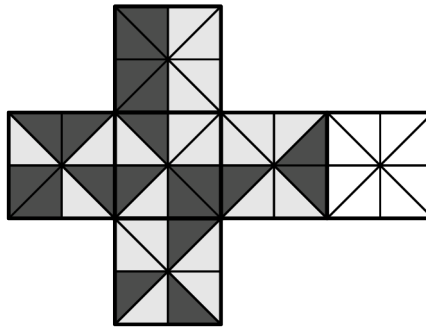
He wants the triangles that touch the edges of neighbouring faces of the cube to be shaded the same. How should he shade the triangles of the unshaded square in the net?

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

29. Simon takes four cups out of the cupboard and puts them randomly on the four saucers. Which statement is correct?
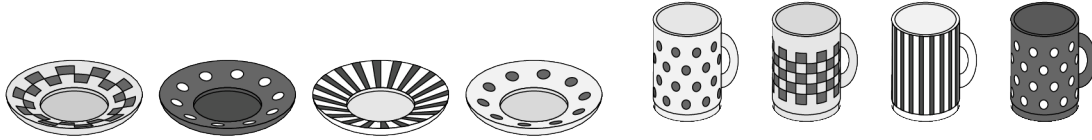
(**A**) It is certain that none of the 4 cups stands on its matching saucer.

(**B**) It is certain that exactly 1 cup stands on its matching saucer.

(**C**) It is impossible for exactly 2 cups to stand on its matching saucer.

(**D**) It is impossible for exactly 3 cups to stand on its matching saucer.

(**E**) It is impossible for all 4 cups to stand on its matching saucer.

30. A grandmother has some candies. She decides to divide them so that each of his grandchildren had a bag that contain the same number of candies. She puts the largest possible number of candies in each bag and, when she is done, she sees that there are 20 candies in each bag and 12 candies are left over. What is the smallest possible number of candies she could have?

(**A**) 52   (**B**) 232   (**C**) 272   (**D**) 411   (**E**) 432

Name:

Institution:

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

Costa Rica