

Canguro Matemático Costarricense



Benjamin Test
Fifth grade

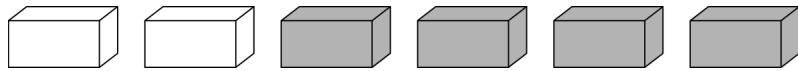
Student name: _____

Name of the school: _____

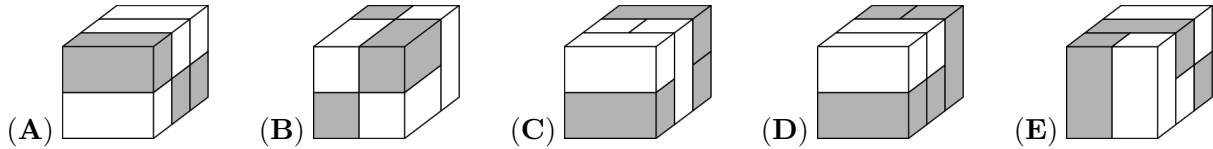
Kangourou Sans Frontières
Costa Rica 2021

3 points

1.



Which of the following solid shapes can be made with these 6 bricks ?



2. In how many places in the picture are two children holding each other with their left hands?

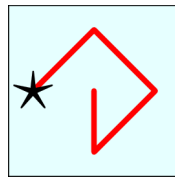


- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

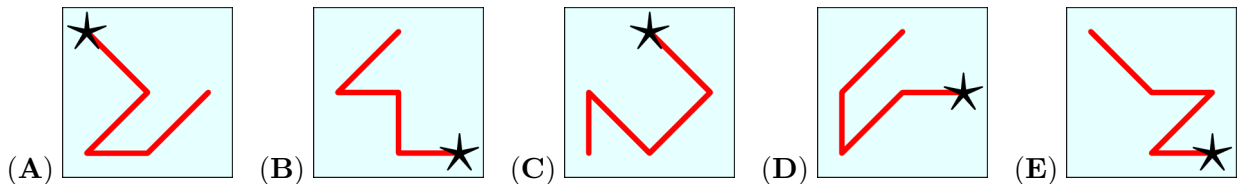
3. In the square you can see the digits from 1 to 9.

1	2	3
4	5	6
7	8	9

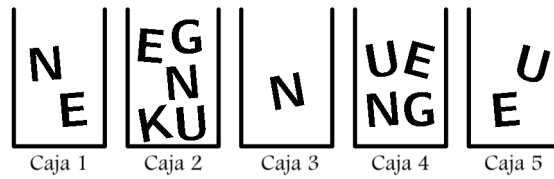
A number is created by starting at the star, following the line and writing down the digits along the line while passing.



For example the line shown represents the number 42685. Which of the following lines represents the largest number?



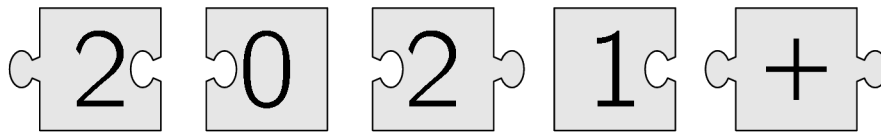
4. Sofie wants to write the word KENGU by using letters from the boxes. She can only take one letter from each box.



What letter must Sofie take from box 4?

- (A) K (B) E (C) N (D) G (E) U

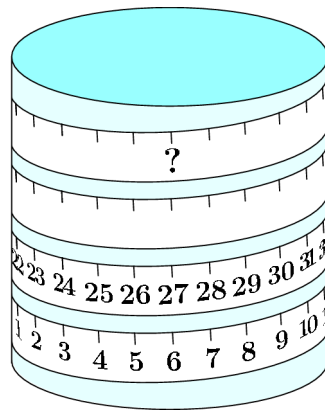
5. When the 5 pieces shown are fitted together correctly, the result is a rectangle with a calculation written on it.



What is the answer to this calculation?

- (A) 22 (B) 32 (C) 41 (D) 122 (E) 203

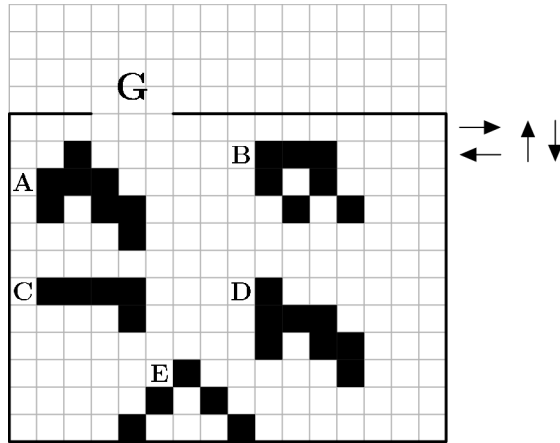
6. A measuring tape is wound around a cylinder.



Which number should be at the place shown by the question mark?

- (A) 53 (B) 60 (C) 69 (D) 77 (E) 81

7. The 5 figures on the grid can only move in the directions indicated by the black arrows.



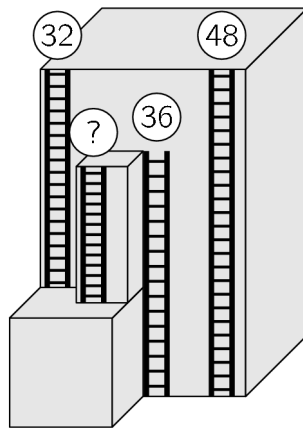
Which figure can leave through gate G?

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

8. Carin is going to paint the walls in her room green. The green paint is too dark so she mixes it with white paint. She tries different mixtures. Which of the following mixtures will give the darkest green colour?

- (A) 1 part green + 3 parts white (B) 2 parts green + 6 parts white
 (C) 3 parts green + 9 parts white (D) 4 part green + 12 parts white
 (E) They will all be equally dark

9. On a tall building there are 4 fire escape ladders, as shown. The heights of 3 ladders are at their tops.



What is the height of the shortest ladder?

- (A) 12 (B) 14 (C) 16 (D) 20 (E) 22

10. Nora plays with 3 cups on the kitchen table. She takes the left-hand cup, flips it over, and puts it to the right of the other cups. The picture shows the first move.



What do the cups look like after 10 moves?

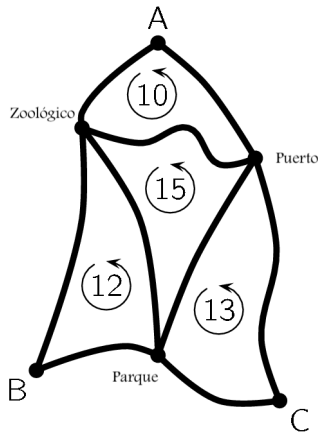
- (A) (B) (C) (D) (E)

4 points

11. The number 5021972970 is written on a sheet of paper. Julian cuts the sheet twice so he gets three numbers. What is the smallest sum he can get by adding these three numbers?

- (A) 3244 (B) 3444 (C) 5172 (D) 5217 (E) 5444

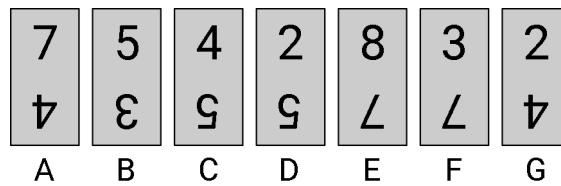
12. The map shows three bus stations at points A, B and C. A tour from station A to the Zoo and the Port and back to A is 10 km long. A tour from station B to the Park and the Zoo and back to B is 12 km long. A tour from station C to the Port and the Park and back to C is 13 km long. Also A tour from the Zoo to the Park and the Port and back to the Zoo is 15 km long.



How long is the shortest tour from A to B to C and back to A?

- (A) 18 km (B) 20 km (C) 25 km (D) 35 km (E) 50 km

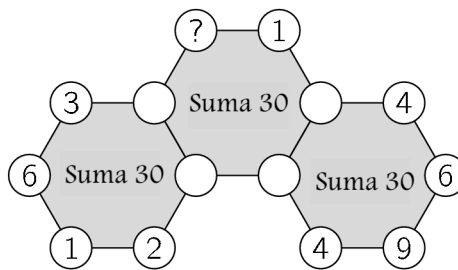
13. 7 cards are arranged as shown. Each card has 2 numbers on with 1 of them written upside down. The teacher wants to rearrange the cards so that the sum of the numbers in the top row is the same as the sum of the numbers in the bottom row. She can do this by turning one of the cards upside down.



Which card must she turn?

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

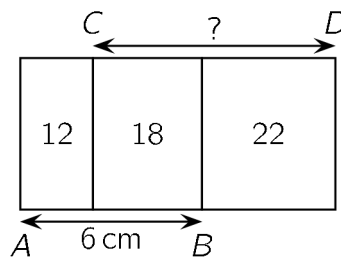
14. The diagram shows three hexagons with numbers at their vertices, but some numbers are invisible. The sum of the six numbers around each hexagon is 30.



What is the number on the vertex marked with a question mark?

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

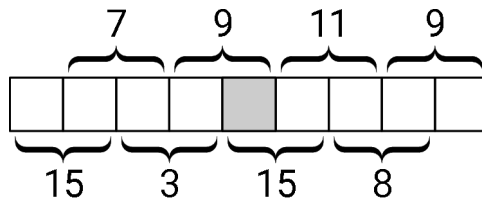
15. Three rectangles of the same height are positioned as shown. The numbers within the rectangles indicate their areas in cm^2 .



If $AB = 6$ cm, how long is CD ?

- (A) 7 cm (B) 7.5 cm (C) 8 cm (D) 8.2 cm (E) 8.5 cm

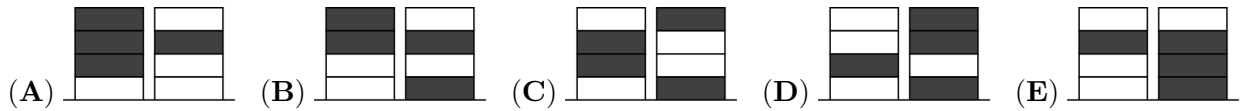
16. The numbers 1 to 9 are placed in the squares shown with a number in each square. The sums of all pairs of neighbouring numbers are shown.



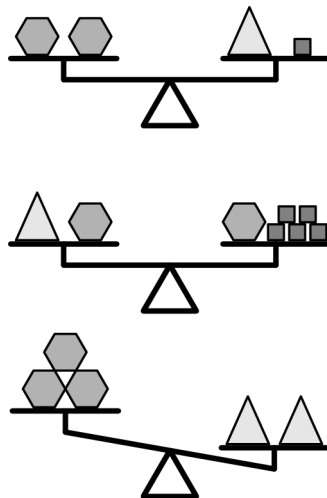
Which number is placed in the shaded square?

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

17. Ronja had four white tokens and Wanja had four grey tokens. They played a game in which they took turns to place one of their tokens to create two piles. Ronja placed her first token first. Which pair of piles could they not create?



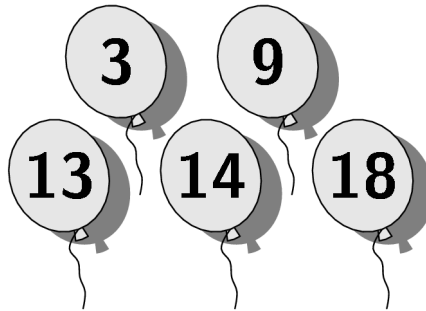
18. Martin placed 3 different types of objects, hexagons , squares and triangles , on sets of scales, as shown.



What does he need to put on the left-hand side on the third set of scales for these scales to balance?

- (A) 1 square (B) 2 squares (C) 1 hexagon (D) 1 triangle (E) 2 triangles

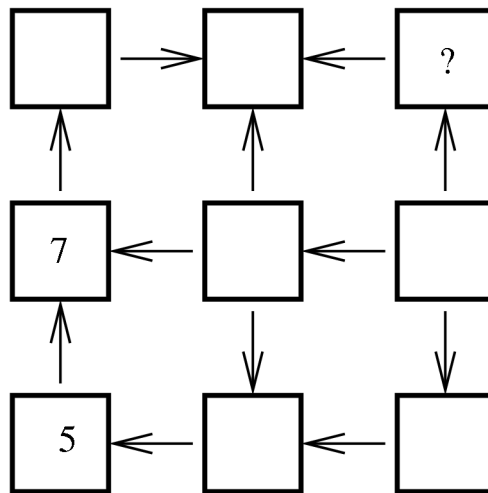
19. Mia throws darts at balloons worth 3, 9, 13, 14 and 18 points. She scores 30 points in total.



Which balloon does Mia *definitely* hit?

- (A) 3 (B) 9 (C) 13 (D) 14 (E) 18

20. Elena wants to write the numbers from 1 to 9 in the squares shown. The arrows always point from a smaller number to a larger one. She has already written 5 and 7.



Which number should she write instead of the question mark?

- (A) 2 (B) 3 (C) 4 (D) 6 (E) 8

5 points

21. Ann, Bob, Carina, Dan and Ed are sitting at a round table. Ann is not next to Bob, Dan is next to Ed and Bob is not next to Dan. Which two people are sitting next to Carina?

- (A) Ann and Bob (B) Bob and Dan (C) Dan and Ed (D) Ed and Ann
 (E) It is not possible to be certain

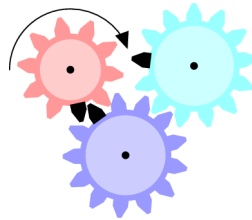
22. Maurice asked the canteen chef for the recipe for his pancakes.

Ingredientes para 100 panqueques	
25 Huevos	4 Litros de leche
5 kg Harina	1 kg de mantequilla

Maurice has 6 eggs, 400g flour, 0,5 liters of milk and 200g butter. What is the largest number of pancakes he can make using this recipe?

- (A) 6 (B) 8 (C) 10 (D) 12 (E) 15

23. The picture shows three gears with a black gear tooth on each.



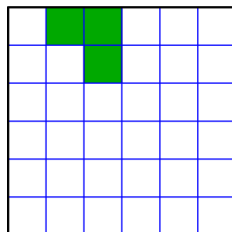
Which picture shows the correct position of the black teeth after the small gear has turned a full turn clockwise?

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

24. There were 20 apples and 20 pears in a box. Carl randomly took 20 pieces of fruit from the box and Luca took the rest. Which of the following statements is always true?

- (A) Carl got at least one pear. (B) Carl got as many apples as pears.
 (C) Carl got as many apples as Luca. (D) Carl got as many pears as Luca got apples.
 (E) Carl got as many pears as Luca.

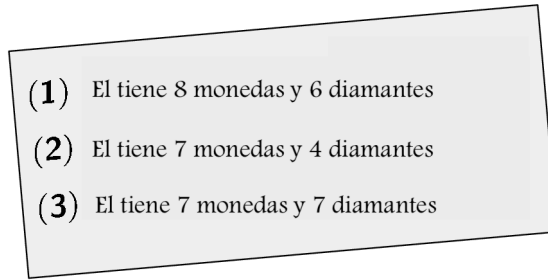
25.



What is the smallest number of shaded squares that can be added to the diagram to create a design with four axes of symmetry?

- (A) 1 (B) 9 (C) 12 (D) 13 (E) 21

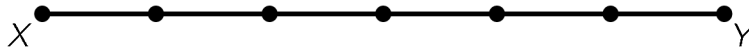
26. Three pirates were asked how many coins and how many diamonds their friend Graybeard had. Each of the three told the truth to one question but told a lie to the other. Their answers are written on the piece of paper pictured.





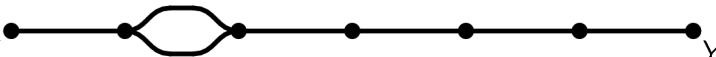


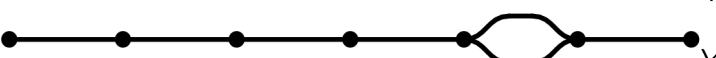
What is the total number of coins and diamonds that Graybeard has?

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

27. There is a single train track between points X and Y .



A train company wants one train to leave from X and one train to leave from Y at the same time daily. Moving with constant speed it takes 180 minutes for a train to make a trip from X to Y and 60 minutes from Y to X . They want to build a double track  to avoid a crash. Where should the double track be?

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

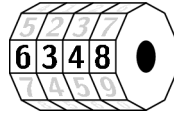
28. A large cube has side-length 7cm. On each of its 6 faces, the two diagonals are drawn in red. The large cube is then cut into small cubes with side-length 1cm. How many small cubes will have at least one red line drawn on it?

- (A) 54 (B) 62 (C) 70 (D) 78 (E) 86

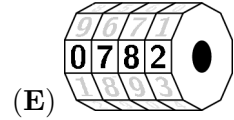
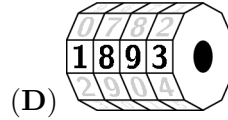
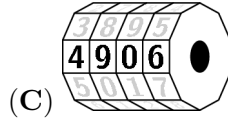
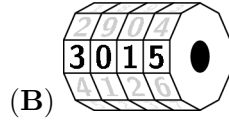
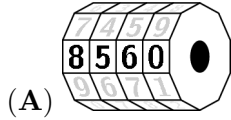
29. In a group of 10 elves and trolls, each were given a token with a different number from 1 to 10 written upon it. They were each asked what number was on their token and all answered with a number from 1 to 10. The sum of the answers was 36. Each troll told a lie and each elf told the truth. What is the smallest number of trolls there could be in the group?"

- (A) 1 (B) 3 (C) 4 (D) 5 (E) 7

30. My little brother has a 4-digit bike lock with the digits 0 to 9 on each part of the lock as shown. He started on the correct combination and turned each part the same amount in the same direction and now the lock shows the combination 6348.



Which of the following CANNOT be the correct combination of my brother's lock?



Name: _____

School: _____

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

