

# Canguro Matemático



## Benjamin Problems Fifth grade

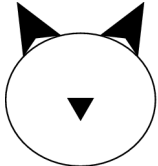
Name: \_\_\_\_\_

Institution: \_\_\_\_\_ Grade: \_\_\_\_\_

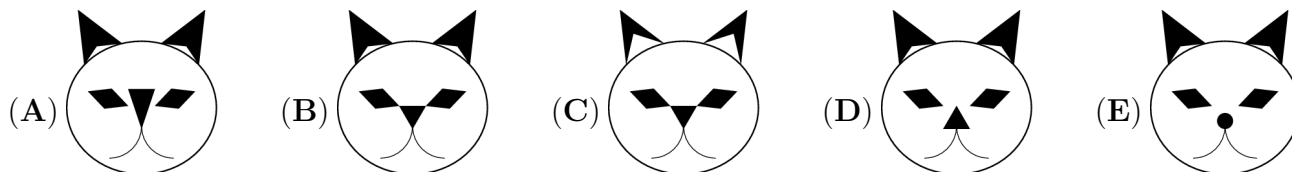
Kangourou Sans Frontières

Costa Rica 2019

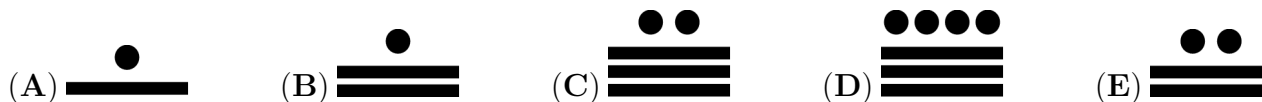
3 points

1. Carrie has started to draw a cat.  She finishes her drawing by adding more color.

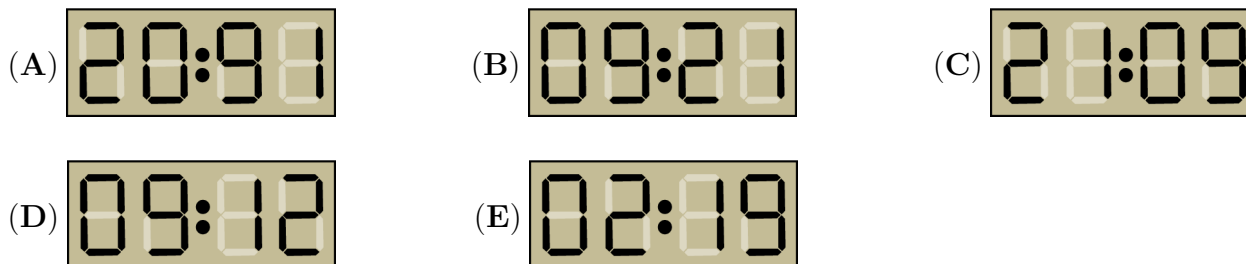
Which of the figures below can be her drawing?



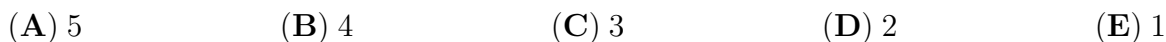
2. The Mayan people wrote numbers with dots and bars. A dot is written for 1 and a bar for 5. How did they write 17?



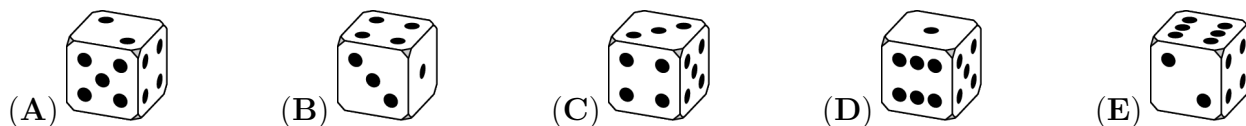
3. A digital clock shows the time 20:19. What will the clock show the next time it uses the same digits?

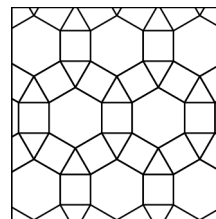


4. There are 14 girls and 12 boys in a kindergarten. If half of the children go for a walk, at least how many of them are girls?

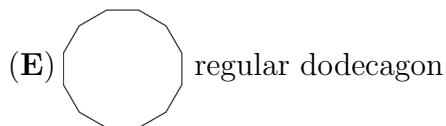
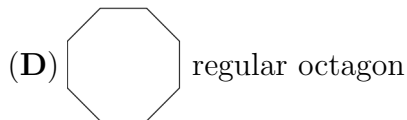
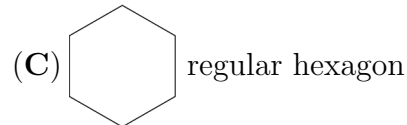
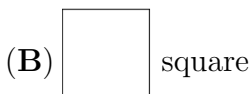



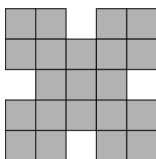
5. The sum of the dots on opposite faces of an ordinary dice is equal to 7. Which of the following shows the ordinary one?





6. Which of the following geometric figures is not in this design?



7. Laura wants to colour a  $2 \times 2$  square  of this figure . How many possibilities are there?

(A) 5

(B) 6

(C) 7

(D) 8

(E) 9

8. The 6 smallest odd natural numbers are written on the faces of a dice. Toni throws it three times and adds the results. Which of the following numbers cannot be the sum?

(A) 21

(B) 3

(C) 20

(D) 19

(E) 29

9. The sum of the ages of a group of kangaroos is 36 years. In two years time the sum of their ages will be 60 years. How many kangaroos are in that group?

(A) 10

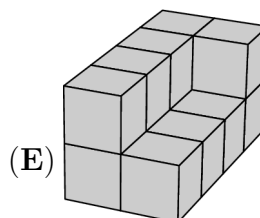
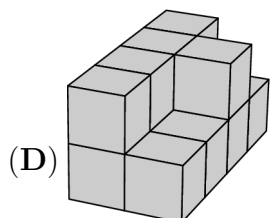
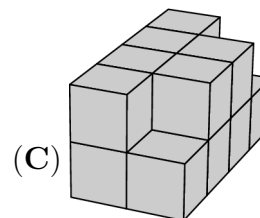
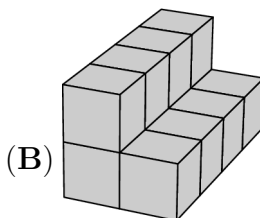
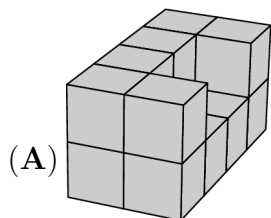
(B) 12

(C) 15

(D) 20

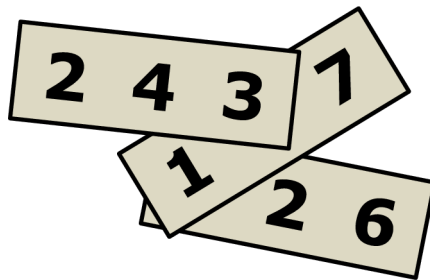
(E) 24

10. Michael paints the following buildings made up of identical cubes. Their bases are made of 8 cubes. Which building needs the most paint?



4 points

11. On each of three pieces of paper a three digit number is written. Two of the digits are covered. The sum of the three numbers is 826. What is the sum of the two covered digits?

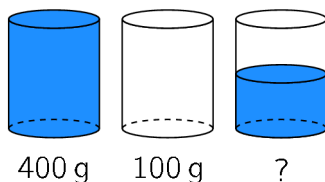


- (A) 7                      (B) 8                      (C) 9                      (D) 10                      (E) 11

12. Riri the frog usually eats 5 spiders a day. When Riri is very hungry, she eats 10 spiders a day. She ate 60 spiders in 9 days. How many days was she very hungry?

- (A) 1                      (B) 2                      (C) 3                      (D) 6                      (E) 9

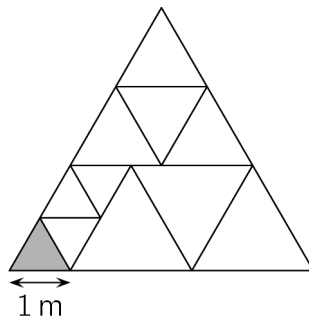
13. A full glass of water weighs 400 grams. An empty glass weighs 100 grams.



How many grams does a half-full glass of water weigh?

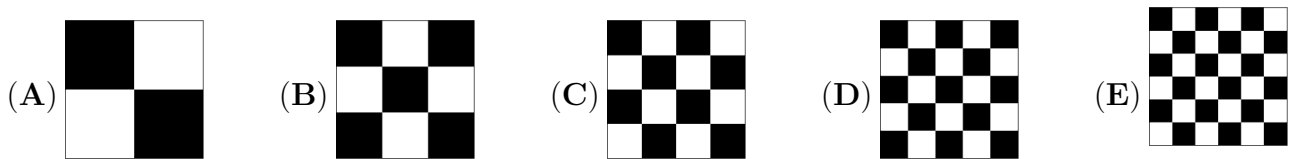
- (A) 150                      (B) 200                      (C) 225                      (D) 250                      (E) 300

14. A big triangle is divided into equilateral triangles as in the figure. The side of the small gray triangle is 1 m. What is the perimeter of the big triangle?

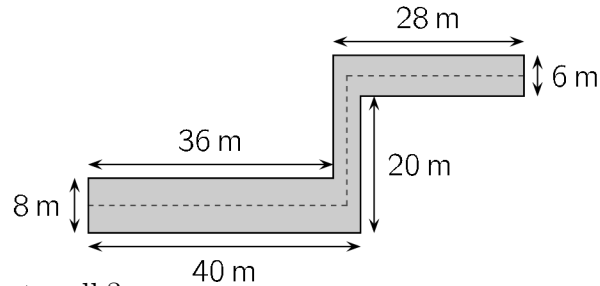


- (A) 15 m                      (B) 17 m                      (C) 18 m                      (D) 20 m                      (E) 21 m

15. Five equal squares are divided into smaller squares. Which square has the largest black area?



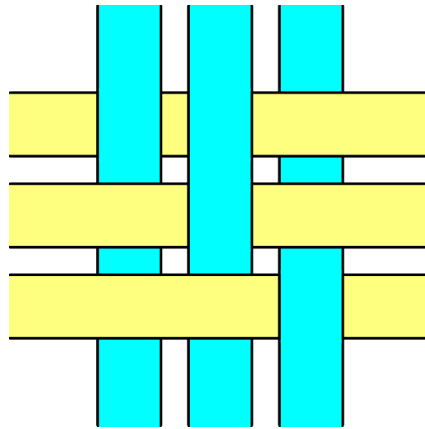
16. A hallway has the dimensions shown in the picture. A cat walks on the dashed line along the middle of the hallway.



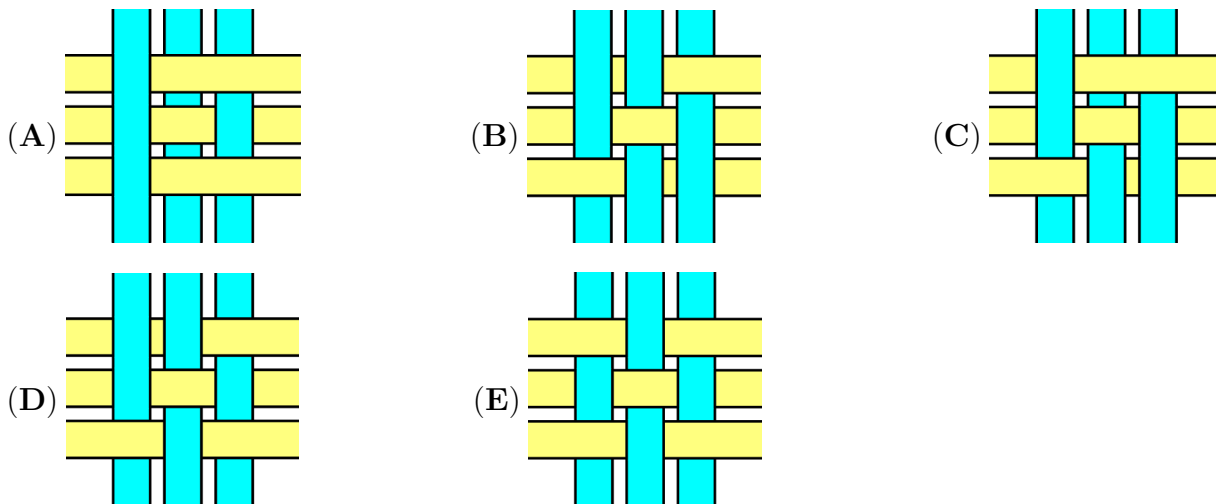
How many metres does the cat walk?

- (A) 63                      (B) 68                      (C) 69                      (D) 71                      (E) 83

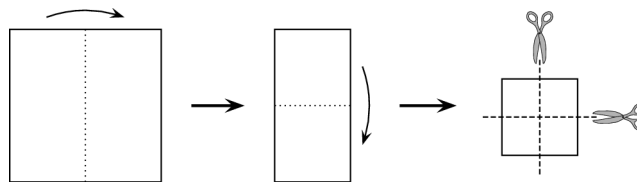
17. Six strips are woven into a pattern as shown.



What does the pattern look like from the back?

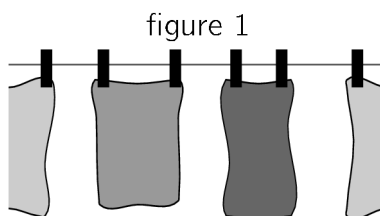


18. Bridget folded a square sheet of paper twice, and then cut it twice as shown in the figure. How many pieces of paper will she get?

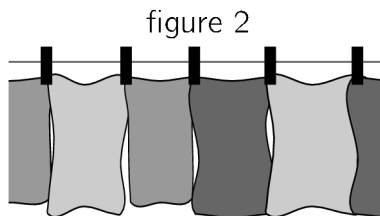


- (A) 6                      (B) 8                      (C) 9                      (D) 12                      (E) 16

19. Emil started to hang up towels using two pegs for each towel as shown in figure 1.



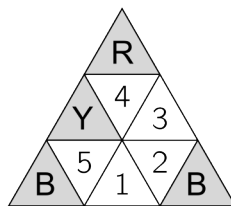
He realised that he would have not enough pegs and began to hang up the towels as shown in figure 2.



Overall, he hung up 35 towels and used 58 pegs. How many towels did Emil hang up in the way shown in figure 1?

- (A) 12                      (B) 13                      (C) 21                      (D) 22                      (E) 23

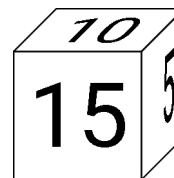
20. Mary has 9 small triangles: 3 of them are red (R), 3 are yellow (Y) and 3 are blue (B). She wants to form a big triangle by putting together these 9 small triangles so that any two triangles with an edge in common are different colours. Mary places some small triangles as shown in the picture.



Which of the following statements is true after she has finished?

- (A) 1 is yellow and 3 is red                      (B) 1 is blue and 2 is red                      (C) 1 and 3 are red  
 (D) 5 is red and 2 is yellow                      (E) 1 and 3 are yellow

5 points

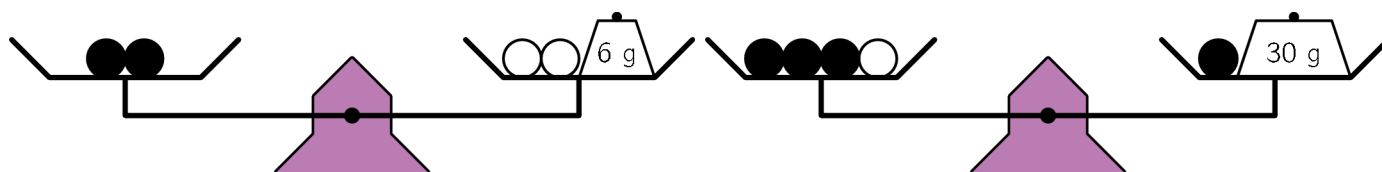


21. The cube shown in the figure has a positive integer written on each face.

The products of the two numbers on opposite faces are the same. What is the smallest possible sum of the six numbers on the cube?

- (A) 36                      (B) 37                      (C) 41                      (D) 44                      (E) 60

22. Six identical black beads and three identical white beads are arranged on weighing scales as shown in the picture. What is the total weight of these nine beads?

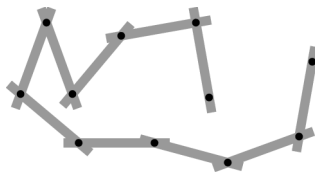


- (A) 100 g                      (B) 99 g                      (C) 96 g                      (D) 94 g                      (E) 90 g

23. Robert made 5 statements (A) - (E), exactly one of which is false. Which one?

- (A) My son Basil has 3 sisters.                      (B) My daughter Ann has 2 brothers.  
 (C) My daughter Ann has 2 sisters.                      (D) My son Basil has 2 brothers.  
 (E) I have 5 children.

24. Pia plays with a yardstick consisting of 10 sticks (see picture). Which of the following figures cannot be formed with this yardstick?

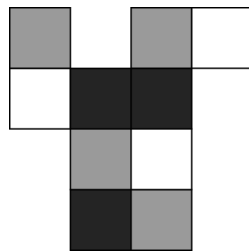


- (A)      (B)      (C)      (D)      (E)

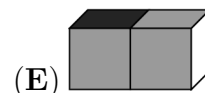
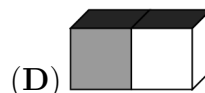
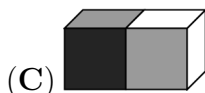
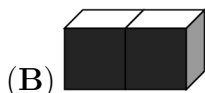
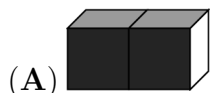
25. Emily took selfies with her 8 cousins. Each of the 8 cousins is in two or three pictures. In each picture there are exactly 5 cousins. How many selfies did Emily take?

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

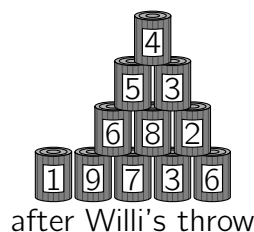
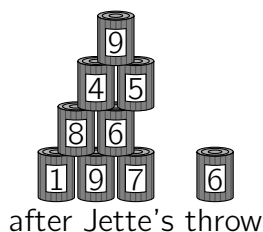
26. The cardboard is folded into a  $2 \times 1 \times 1$  box.



Which picture does NOT show this box?

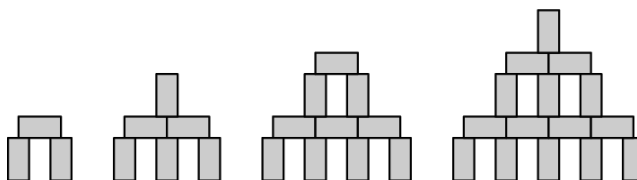


27. Jette and Willi are throwing balls at two identical pyramids of 15 cans. Jette knocks down 6 cans with a total of 25 points. Willi knocks down 4 cans. How many points does Willi score?



- (A) 22                      (B) 23                      (C) 25                      (D) 26                      (E) 28

28. With blocks of dimension  $1\text{cm} \times 1\text{cm} \times 2\text{cm}$ , you can build towers as shown in the picture. How high is a tower that is built in the same way with 28 blocks?



- (A) 9cm                      (B) 11cm                      (C) 12cm                      (D) 14cm                      (E) 17cm

29. In the garden of a witch there are 30 animals: dogs, cats and mice. The witch turns 6 dogs into cats. Then she turns 5 cats into mice. Now her garden has the same number of dogs, cats and mice. How many cats were there at the beginning?

- (A) 4                      (B) 5                      (C) 9                      (D) 10                      (E) 11

30. Zev has two machines: one exchanges 1 white token into 4 red tokens, while the other exchanges 1 red token into 3 white ones. Zev has 4 white tokens. After exactly 11 exchanges, he has 31 tokens. How many of those are red?

- (A) 21                      (B) 17                      (C) 14                      (D) 27                      (E) 11





## Answers

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