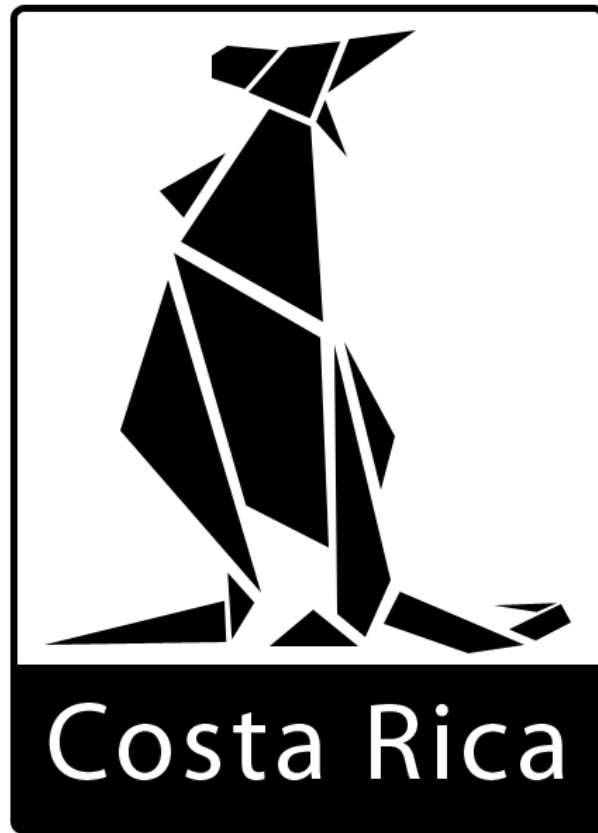


# Kangourou Sans Frontières

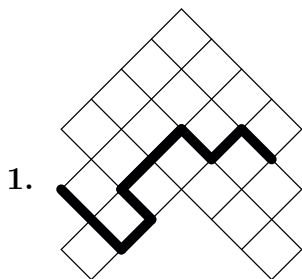


Cadet Test  
Seventh Grade

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

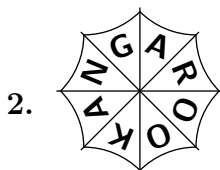
Costa Rica 2015

3 points



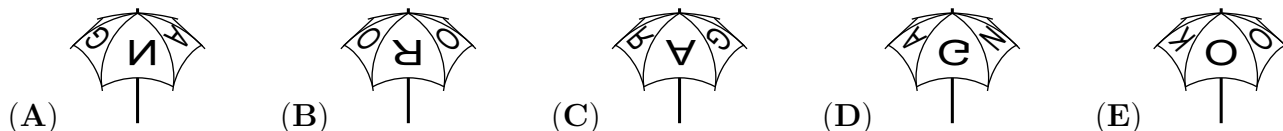
The figure shows a board where each small square has an area of  $4 \text{ cm}^2$ . What is the length of the thick black line?

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



My umbrella has KANGAROO written on top, as shown in the picture on the right.

One of the following pictures also shows my umbrella. Which one?

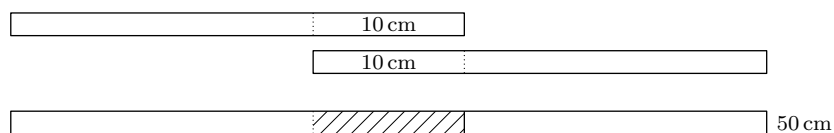


3. Four identical small rectangles are put together to form a large rectangle as shown. The length of the shorter side of the large rectangle is 10 cm. What is the length of the longer side of the large rectangle?



- (A) 10 cm      (B) 20 cm      (C) 30 cm      (D) 40 cm      (E) 50 cm

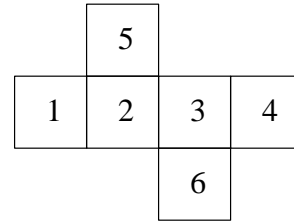
4. Alva has 4 paper strips of the same length. She glues 2 of them together with a 10 cm overlap, and gets a strip 50 cm long. With the other two paper strips, she wants to make a strip 56 cm long. How long should the overlap be?



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

5. Which of the following numbers is closest to  $2.015 \times 510.2$  ?

- (A) 0.1      (B) 1      (C) 10      (D) 100      (E) 1000



6. The net of a cube with numbered faces is shown in the diagram.

Sasha correctly adds the numbers on opposite faces of this cube. What three totals does Sasha get?

- (A) 4, 6, 11      (B) 4, 5, 12      (C) 5, 6, 10      (D) 5, 7, 9      (E) 5, 8, 8

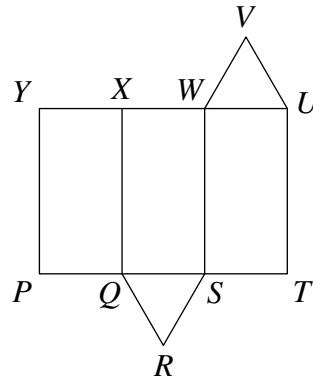
7. Which of the following numbers is not an integer ?

- (A)  $\frac{2011}{1}$       (B)  $\frac{2012}{2}$       (C)  $\frac{2013}{3}$       (D)  $\frac{2014}{4}$       (E)  $\frac{2015}{5}$

8. A journey from Koice to Poprad through Preov lasts 130 minutes. The part of the journey from Koice to Preov lasts 35 minutes. How long does the part of the journey from Preov to Poprad last?

- (A) 95 minutes      (B) 105 minutes      (C) 115 minutes      (D) 165 minutes      (E) 175 minutes

9. The diagram shows the net of a triangular prism. Which edge coincides with edge  $UV$  when the net is folded to make the prism?



- (A)  $WV$       (B)  $XW$       (C)  $XY$       (D)  $QR$       (E)  $RS$

10. A triangle has sides of lengths 6, 10 and 11. An equilateral triangle has the same perimeter. What is the side length of the equilateral triangle?

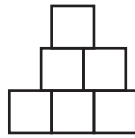
- (A) 18      (B) 11      (C) 10      (D) 9      (E) 6

4 points

11. When Simon the squirrel comes down to the ground, he never goes further than 5 m from the trunk of his tree. However, he also stays at least 5 m away from the doghouse. Which of the following pictures most accurately shows the shape of the region on the ground where Simon might go?

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

12. 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

13. 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

14. A cyclist rides at 5 m per second. The wheels of his bicycle have a circumference of 125 cm. How many complete turns does each wheel make in 5 seconds?

- (A) 4                      (B) 5                      (C) 10                      (D) 20                      (E) 25

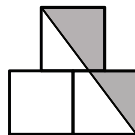
15. Lucy and her mother were both born in January. Today, March 19 2015, Lucy adds the year of her birth, the year of her mother's birth, her age, and her mother's age. What result does she get?

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

16. In a class, no two boys were born on the same day of the week and no two girls were born in the same month. Were a new boy or a new girl to join this class, one of these two conditions would no longer be true. How many children are there in the class?

- (A) 18                      (B) 19                      (C) 20                      (D) 24                      (E) 25

17. In the diagram, the centre of the top square is directly above the common edge of the lower two squares. Each square has sides of length 1. What is the area of the shaded region?



- (A)  $\frac{3}{4}$                       (B)  $\frac{7}{8}$                       (C) 1                      (D)  $1\frac{1}{4}$                       (E)  $1\frac{1}{2}$

18. Every asterisk in the equation  $2 * 0 * 1 * 5 * 2 * 0 * 1 * 5 * 2 * 0 * 1 * 5 = 0$  is to be replaced with either + or – so that the equation is correct. What is the smallest number of asterisks that must be replaced with +?

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

**19.** 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

**20.** During a rainstorm, 15 litres of water fell per square metre. By how much did the water level rise in an open-air pool?

- (A) 150 cm                      (B) 0.15 cm                      (C) 15 cm                      (D) 1.5 cm  
(E) It depends upon the size of the pool.

5 points

**21.** A bush has 10 branches. Each branch has either 5 leaves only or 2 leaves and 1 flower. Which of the following could be the total number of leaves the bush has?

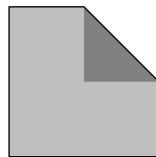


- (A) 45                      (B) 39                      (C) 37                      (D) 31  
(E) None of (A) to (D)

**22.** The mean score of the students who took a mathematics test was 6. Exactly 60% of the students passed the test. The mean score of the students who passed the test was 8. What was the mean score of the students who failed the test?

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

**23.** One corner of a square is folded to its centre to form an irregular pentagon. The areas of the pentagon and of the square are consecutive integers. What is the area of the square?



- (A) 2                      (B) 4                      (C) 8                      (D) 16                      (E) 32

**24.** Rachel added the lengths of three sides of a rectangle and got 44 cm. Heather added the lengths of three sides of the same rectangle and got 40 cm. What is the perimeter of the rectangle?

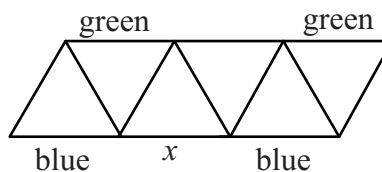
- (A) 42 cm                      (B) 56 cm                      (C) 64 cm                      (D) 84 cm                      (E) 112 cm

25. In this sum, equal letters represent equal digits, and different letters represent different digits. Which digit is represented by the letter  $X$ ?

$$\begin{array}{r} X \\ + \quad X \\ + \quad Y \quad Y \\ \hline Z \quad Z \quad Z \end{array}$$

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

26. The diagram indicates the colours of some unit segments of a pattern. Luis wants to colour each remaining unit segment in the pattern either red or blue or green. Each triangle must have one side of every colour. What colour can he use for the segment marked  $x$ ?



- (A) only green                      (B) only red                      (C) only blue  
 (D) either red or blue                      (E) The task is impossible.

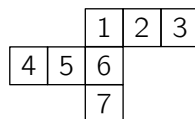
27. Irina asked five of her students how many of the five of them had studied the day before. Pol said none, Berta said only one, Ona said exactly two, Eugeni said exactly three and Gerard said exactly four. Irina knew that those students who had not studied were not telling the truth, but those who had studied were telling the truth. How many of these students had studied the day before?

- (A) 0                      (B) 1                      (C) 2                      (D) 3                      (E) 4

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?

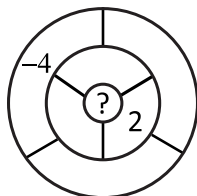
- (A) 36                      (B) 45                      (C) 34                      (D) 65                      (E) 100

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.** Ria wants to write a number in each of the seven bounded regions in the diagram. Two regions are neighbours if they share part of their boundary. The number in each region is to be the sum of the numbers in all its neighbours. Ria has already written in two of the numbers, as shown. What number must she write in the central region?



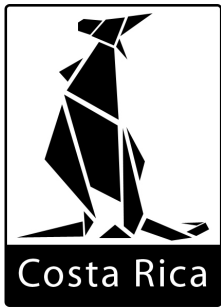
(A) 1

(B) -2

(C) 6

(D) -4

(E) 0



## 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