

*Kangourou Sans Frontières**Math Kangaroo in USA*

Math Kangaroo 2015 in USA

International Competition in Mathematics

Thursday, March 19, 2015

This test consists of 24 questions on 4 pages.

You have 75 minutes to complete it.

Calculators are not allowed!

Please enter your answers on the answer form provided.

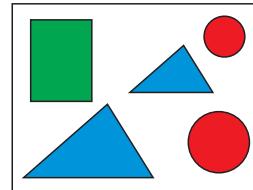
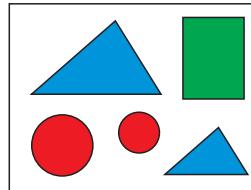
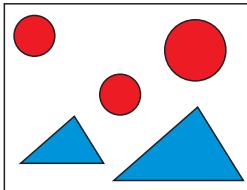
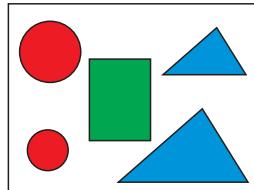
Please put your name and ID number on the line below.

Levels

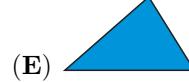
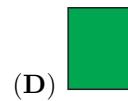
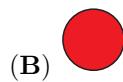
1 and 2

3 points

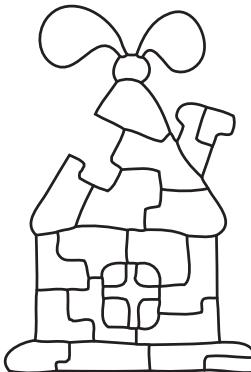
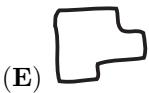
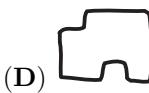
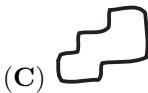
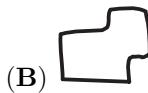
1. Look closely at these four pictures.



Which figure is missing from one of the pictures?



2. Find the piece missing from the house on the right.



3. There are five ladybugs shown to the left. How many spots are there on all the ladybugs together?

(A) 17

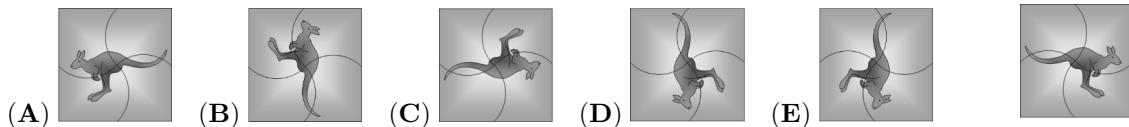
(B) 18

(C) 19

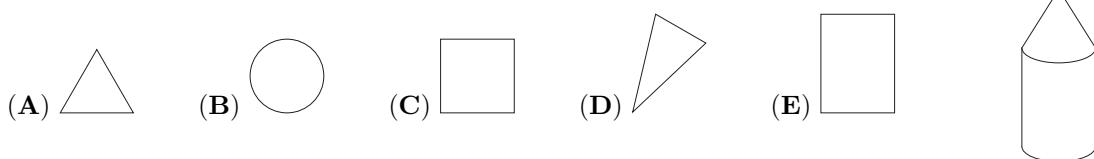
(D) 20

(E) 21

4. Which of the following pictures can be rotated so that it will be the same as the picture shown on the right?



5. What does the tower shown to the right look like from above?



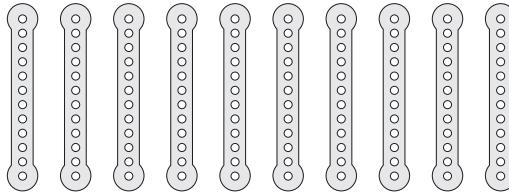
6. The diagram to the left shows six numbers. What is the sum of the numbers outside the square?

- | | | | | |
|--------|--------|--------|--------|--------|
| (A) 12 | (B) 11 | (C) 23 | (D) 33 | (E) 10 |
|--------|--------|--------|--------|--------|

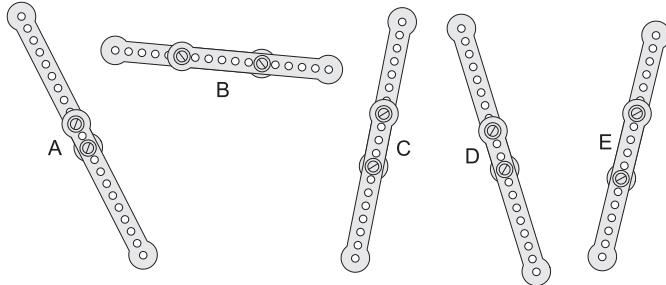
7. Half of a movie lasts half an hour. How long does the whole movie last?

- | | | |
|----------------|------------------|------------|
| (A) 15 minutes | (B) half an hour | (C) 1 hour |
| (D) 2 hours | (E) 40 minutes | |

8. Eric has 10 identical metal strips.



He used screws to connect pairs of them together into five long strips.



Which connected strip is the shortest?

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

4 points

9. There are 11 flags on a straight race track. The first flag is at the start, and the last flag is at the finish. The distance between each flag is 4 meters. How long is the track?

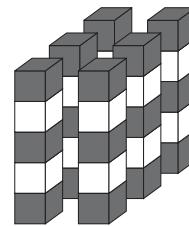
- | | | | | |
|---------------|---------------|---------------|---------------|---------------|
| (A) 12 meters | (B) 24 meters | (C) 36 meters | (D) 40 meters | (E) 44 meters |
|---------------|---------------|---------------|---------------|---------------|

10. Marko has 9 pieces of candy and Tomo has 17 pieces of candy. How many pieces of candy does Tomo need to give to Marko so that each boy has the same number of pieces of candy?

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

11. Martha built six towers using gray cubes and white cubes as shown in the picture to the right. She made each tower using five cubes. Cubes of the same color do not touch. How many white cubes did she use?

- (A) 10 (B) 11 (C) 12 (D) 18 (E) 30

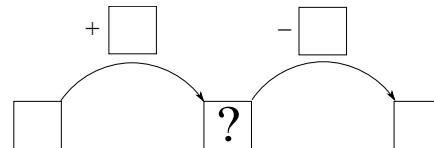


12. When written as 5/5/2015, the date May fifth, 2015, has three 5's. The next earliest date that will have three 5's is:

- (A) May tenth, 2015 (B) April twenty-fifth, 2015 (C) May twenty-fifth, 2015
 (D) January fifth, 2055 (E) May fifteenth, 2015

13. Emil placed the numbers 1, 2, 3, 4, and 5 correctly in the boxes in the diagram on the right. What number did he place in the box with the question mark?

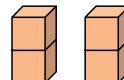
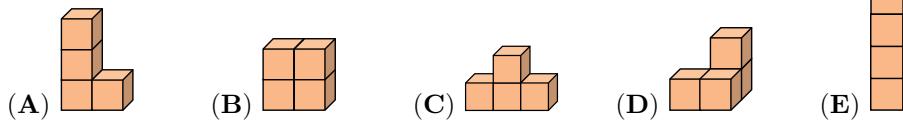
- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5



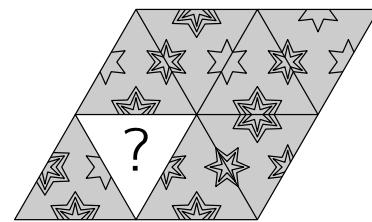
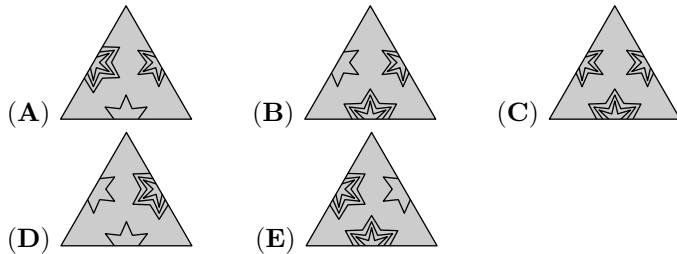
14. Vera invited 13 guests to her birthday party. She had 2 pizzas, and each of them was cut into 8 slices. Each person at the party ate one slice of pizza. How many slices of pizza were left over?

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

15. Don has two identical bricks (see picture to the right). Which figure can he not build using these two bricks?



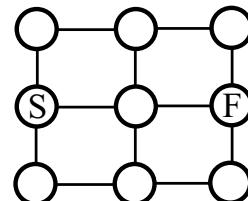
16. Which piece is missing from the puzzle to the right?



5 points

17. In one jump, Jake the Kangaroo jumps from one circle to a neighboring circle along a line, as shown in the picture to the right. He cannot jump into any circle more than once. He starts at circle S and needs to make exactly 4 jumps to get to circle F. In how many different ways can Jake do this?

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



18. A ship was attacked by pirates. One by one, the pirates climbed a rope to get to the ship. The pirate captain was the eighth pirate to climb, and there were as many pirates in front of him as behind him. How many pirates climbed the rope?

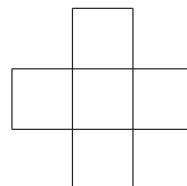
- (A) 7 (B) 8 (C) 12 (D) 15 (E) 16

19. For 3 days, Joy the cat was catching mice. Each day Joy caught 2 mice more than the previous day. On the third day Joy caught twice as many mice as on the first day. In total, how many mice did Joy catch during the three days?

- (A) 12 (B) 15 (C) 18 (D) 20 (E) 24

20. The numbers 3, 5, 7, 8 and 9 were written in the squares of the cross (see the figure to the right) so that the sum of the numbers in the row is equal to the sum of the numbers in the column. Which number was written in the central square?

- (A) 3 (B) 5 (C) 7 (D) 8 (E) 9



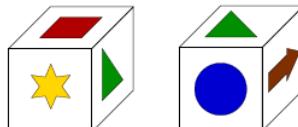
21. My grandmother has a dog named Atos, as well as some ducks, hens and geese. She has 40 animals altogether. She has four times as many geese as ducks. Atos and the hens make up one half of all her animals. My grandmother has:

- (A) 19 hens and 5 ducks (B) 20 hens and 4 ducks (C) 19 hens and 15 geese
 (D) 19 hens and 16 geese (E) 20 hens and 16 geese

22. One of the six stickers shown below was placed on each of the six faces of a die.



The next picture shows the die in two positions.



Which picture is on the face opposite the face with the kangaroo sticker?

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

23. Sylvia, Tara, Una and Wanda went out for dessert. They stood in line one after another. Each one of them ordered one of the following desserts: ice cream, waffle, bun, and cake, and each one ordered a different item. We know that:

- The first girl did not buy the ice cream or the waffle.
- Una was not last in line, and she bought the cake.
- Sylvia, who was standing behind Tara and in front of Una, did not buy the waffle.

Which of the following is true?

- (A) Wanda was first in line. (B) Tara bought the ice cream. (C) Wanda bought the waffle.
 (D) Una was second in line. (E) Sylvia bought the bun.

24. We left for a summer camp yesterday at 4:32 PM and got to our destination today at 6:11 AM. How long did we travel?

- (A) 13 hours 39 minutes (B) 14 hours 39 minutes (C) 14 hours 21 minutes
 (D) 13 hours 21 minutes (E) 2 hours 21 minutes