

23. What is the greatest number of shapes shown in the picture 1 that can be cut out from a  $5 \times 5$  square (see pic. 2)?  
A) 2 B) 4 C) 5 D) 6 E) 7

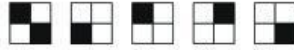


24. Luigi started a small restaurant. His friend Giacomo gave him some square tables and chairs. If he uses all the tables as single tables with 4 chairs each, he would need 6 more chairs. If he uses all the tables as double tables with 6 chairs each, he would have 4 chairs left over. How many tables did Luigi get from Giacomo?  
A) 8 B) 10 C) 12 D) 14 E) 16

25. Clara wants to construct a big triangle using identical small triangular tiles. She has already put some tiles together as shown in the picture. How many tiles does she need to complete a triangle?  
A) 5 B) 9 C) 12 D) 15 E) 18

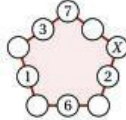


26. A big cube was built from 8 identical small cubes, some black ones and some white ones. Five faces of the big cube are shown in the picture. What does the sixth face of the big cube look like?



- A) B) C) D) E)

27. Kirsten wrote numbers in 5 of the 10 circles as shown in the figure. She wants to write a number in each of the remaining 5 circles such that the sums of the 3 numbers along each side of the pentagon are equal. Which number will she have to write in the circle marked by X?  
A) 7 B) 8 C) 11 D) 13 E) 15



28. The symbols  $\triangle$ ,  $\square$ , and  $\circ$  represent 3 different digits. If you add the digits of the 3-digit number  $\circ\square\circ$  the result is the 2-digit number  $\square\triangle$ . If you add the digits of the 2-digit number  $\square\triangle$ , you find the 1-digit number  $\square$ . Which digit does represent  $\circ$ ?  
A) 4 B) 5 C) 6 D) 8 E) 9

29. Grandpa brought 132 apples and 204 pears from his garden. He gives all these fruits to children such that each child gets the same amount of apples and the same amount of pears. How many children at most can get the fruits?  
A) 4 B) 11 C) 12 D) 6 E) 17

30. Two 3-digit numbers have all their 6 digits distinct. The first digit of the second number is twice the last digit of the first number. What is the smallest possible sum of two such numbers?  
A) 552 B) 546 C) 301 D) 535 E) 537

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# KANGAROO 2016



Time allowed: 75 minutes  
Calculators are not permitted

Benjamin  
5–6 grades

## Questions for 3 points

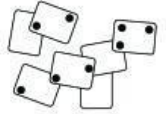
1.  $2 + 0 + 1 + 6 + 2 \cdot 0 \cdot 1 \cdot 6 =$   
A) 11 B) 0 C) 21 D) 9 E) 18

2. Mike cuts a pizza into quarters. Then he cuts every quarter into thirds. What part of the whole pizza is one piece?  
A) A third B) A quarter C) A seventh D) An eighth E) A twelfth

3. A thread of length 10 cm is folded into equal parts as shown in the figure. The thread is cut at the two marked places. What are the lengths of the three parts?  
A) 2 cm, 3 cm, 5 cm B) 2 cm, 2 cm, 6 cm C) 1 cm, 4 cm, 5 cm  
D) 1 cm, 3 cm, 6 cm E) 3 cm, 3 cm, 4 cm



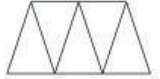
4. On Lisa's refrigerator 8 strong magnets hold some postcards. What is the largest number of magnets that she could remove so that no postcard falls to the ground?  
A) 2 B) 3 C) 4 D) 5 E) 6



5. Cathy draws a square with side length 10 cm. She joins the midpoints of the sides to make a smaller square. What is the area of the smaller square?  
A)  $10 \text{ cm}^2$  B)  $20 \text{ cm}^2$  C)  $25 \text{ cm}^2$  D)  $40 \text{ cm}^2$  E)  $50 \text{ cm}^2$

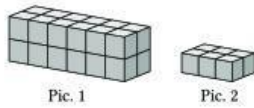


6. The trapezoid is divided into 5 equal isosceles triangles as shown in the figure. The perimeter of each of the triangles is 40 cm and the perimeter of the trapezoid is 80 cm. What is the length of the longer base of the trapezoid?  
A) 15 cm B) 20 cm C) 30 cm D) 40 cm E) 45 cm



7. A centipede has 25 pairs of shoes. It needs one shoe for each of its 100 feet. How many more shoes does the centipede need to buy?  
A) 15 B) 20 C) 35 D) 50 E) 75

8. Tom and John build rectangular boxes using the same number of identical cubes. Tom's box is shown in the picture 1. The first level of John's box is shown in the picture 2. How many levels will John's box have?



Pic. 1

Pic. 2

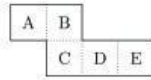
- A) 2 B) 3 C) 4 D) 5 E) 6

9. Tom fills the empty cells of the  $2 \times 2$  table with two natural numbers such that the product of all numbers in the table is 90. How many ways are there to complete the table?

	5
2	

- A) 1 B) 2 C) 3 D) 5 E) 9

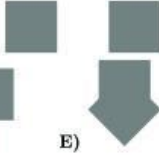
10. The piece of paper shown is folded along the dotted lines to make an open box. The box is put on a table with the top open. Which face is at the bottom of the box?



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

**Questions for 4 points**

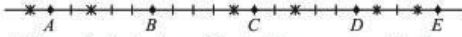
11. Which of the following figures cannot be formed by gluing these two identical squares of paper together?



12. Mary, Ann, and Nata work in a kindergarten. Each day from Monday to Friday exactly two of them come to work. Mary works 3 days per week and Ann works 4 days per week. How many days per week does Nata work?

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

13. Five squirrels  $A, B, C, D,$  and  $E$  are sitting on the line. They pick 6 nuts marked by crosses.



At one moment the squirrels start running to the nearest nut at the same speed. As soon as a squirrel picks a nut it starts running to the next closest nut. Which squirrel will get two nuts?

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

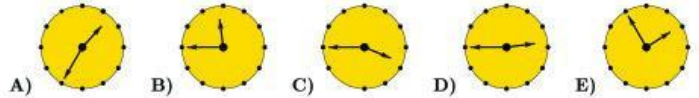
14. There are 30 students in a class all of them sitting in pairs. Each boy sits with a girl, and exactly half of the girls sit with the boys. How many boys are there in the class?

- A) 25 B) 20 C) 15 D) 10 E) 5

15. The number 2581953764 is written on a strip of paper. John cuts the strip 2 times and gets 3 numbers. Then he adds these 3 numbers. Which is the smallest possible sum he can get?

- A) 2675 B) 2975 C) 2978 D) 4217 E) 4298

16. Bart is getting his hair cut. When he looks in the mirror he sees the reflection of the clock (see the picture). What would he have seen if he had looked in the mirror ten minutes earlier?



17. Grandmother bought enough catfood for her four cats to last for 12 days. On her way home she brought back two stray cats. If she gives each cat the same amount of food every day, how many days will the catfood last?

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

18. Each letter in BENJAMIN represents one of the digits 1, 2, 3, 4, 5, 6 or 7. Different letters represent different digits. The number BENJAMIN is odd and divisible by 3. Which digit corresponds to N?

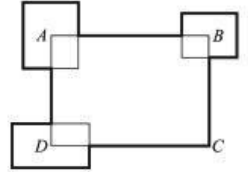
- A) 1 B) 2 C) 3 D) 5 E) 7

19. Tim, Tom and Jim are triplets, while their brother Carl is 3 years younger. Which of the following numbers could be the sum of the ages of the four brothers?

- A) 53 B) 54 C) 56 D) 59 E) 60

20. The perimeter of the rectangle  $ABCD$  is 30 cm. Three other rectangles are placed so that their centres are at the points  $A, B$  and  $D$  (see the figure). The sum of their perimeters is 20 cm. What is the total length of the thick line?

- A) 50 cm B) 45 cm C) 40 cm D) 35 cm  
E) Impossible to determine



**Questions for 5 points**

21. Nobel prize winner Czeslaw Milosz was born in the 20th century. The product of all digits of his birth year equals 9. Which of the following statements is false?

- A) The sum of all digits of his birth year equals 12 B) His birth year is an odd number  
C) His birth year is divisible by 3 D) His birth year is a prime number  
E) This year marks the 105th anniversary of his birth

22. Richard writes down all the numbers with the following properties: the first digit is 1, each of the following digits is at least as big as the one before it, the sum of the digits is 5. How many numbers does he write?

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