

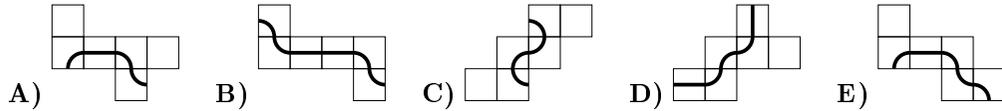
KANGAROO 2019



Benjamin  
5–6 grades

Time allowed: 75 minutes  
Calculators are not permitted

24. Each of the following pictures shows the net of a cube. Only one of the resulting cubes has a closed line on it. Which one?



25. A family has four children. Their names are Ka, La, Ma and Na in some order. Their mother once told:

- out of La, Ma and Na there is one girl and two boys,
- out of Ka, La and Ma there are one boy and two boys,
- out of Ka and La there is one boy and one girl.

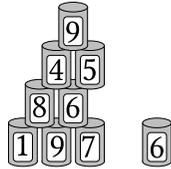
Which ones are the boys?

- A) La and Na B) Ka and La C) Ka and Ma D) Ka and Na E) Ma and Na

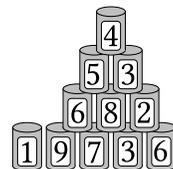
26. Emily took selfies with her 8 cousins. Each of the 8 cousins is in two or three pictures. In each picture there are exactly 5 cousins. How many selfies did Emily take?

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

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?



After Jette's throw



After Willi's throw

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

28. There are 350 passengers traveling by the train of 11 wagons. In every 3 consecutive wagons there are precisely 99 passengers. How many passengers are traveling in the sixth wagon?

- A) 53 B) 46 C) 39 D) 33 E) 32

29. Linas builds a  $4 \times 4 \times 4$  cube using 32 white and 32 black  $1 \times 1 \times 1$  cubes. He arranges the cubes so that as much of the surface of his large cube is white. What fraction of the surface of his cube is white?

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

30. Zev has two machines: one exchanges 1 white token into 3 red tokens, while the other exchanges 1 red token into 2 white ones. At the beginning Zev had 3 white tokens. After exactly 9 exchanges, he has 16 tokens. How many of those are red?

- A) 9 B) 7 C) 4 D) 12 E) 5

Questions for 3 points

1.  $2 \cdot 0 \cdot 1 \cdot 9 + 2 + 0 + 1 + 9 =$

- A) 2031 B) 2019 C) 0 D) 100 E) 12

2. The Mayan people wrote numbers with dots and bars. A dot is written for 1 and a bar for 5. A number 13 is written on the right. How did Mayans write 17?



- A) B) C) D) E)

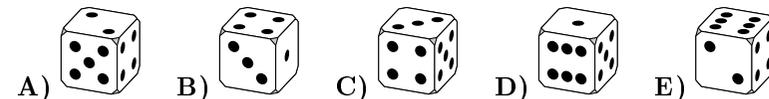
3. A digital clock shows the time 20:19. What will the clock show the next time it uses the same digits?

- A) 01:29 B) 09:21 C) 21:09 D) 09:12 E) 02:19

4. Carrie has started to draw a cat. She finishes her drawing by adding more color. Which of the figures below can be her drawing?



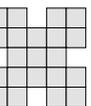
5. The sum of the dots on opposite faces of an ordinary dice is equal to 7. Which of the following shows the ordinary one?



6. There are 14 fifth graders and 12 sixth graders who attend a school choir. If half of the children go on a trip, at least how many of them are fifth graders?

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

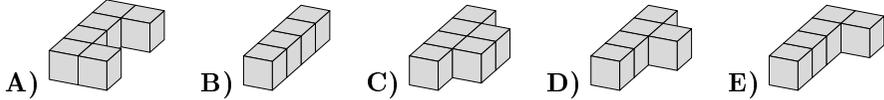
7. Laura wants to colour a  $2 \times 2$  square of the figure shown on the right. How many possibilities are there?



- A) 5 B) 6 C) 7 D) 8 E) 9

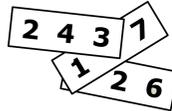
8. Odd numbers 1, 3, 5, 7, 9 and 11 are written on the faces of a dice. Toni throws it three times and adds the results. Which of the following numbers cannot be the sum?  
 A) 21 B) 3 C) 20 D) 19 E) 29
9. The sum of the ages of a group of kangaroos is 36 years. In two years time the sum of their ages 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. Which building needs the most paint?



**Questions for 4 points**

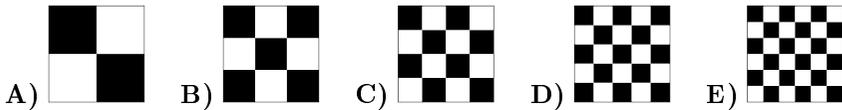
11. On each of three pieces of paper a three digit number is written. Two of the digits are covered. The sum of the three numbers is 826. What is the sum of the two covered digits?  
 A) 7 B) 8 C) 9 D) 10 E) 11



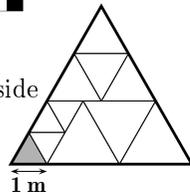
12. Riri the frog usually eats 5 spiders a day. When Riri is very hungry, she eats 10 spiders a day. She ate 60 spiders in 9 days. How many days was she very hungry?  
 A) 1 B) 2 C) 3 D) 6 E) 9

13. Eight consecutive natural numbers are written on the blackboard. The sum of the three lowest numbers equals 66. How many numbers written on the blackboard are divisible by 3?  
 A) 1 B) 2 C) 3 D) 4 E) 5

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

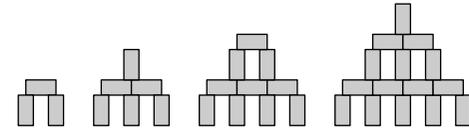


15. A big triangle is divided into equilateral triangles as in the figure. The side of the gray triangle is 1 m. What is the perimeter of the big triangle?  
 A) 15 m B) 17 m C) 18 m D) 20 m E) 21 m



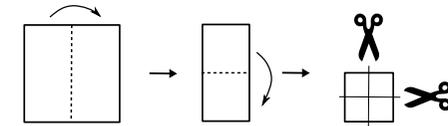
16. In the garden of a witch there are 30 animals: dogs, cats and mice. The witch turns 6 dogs into cats. Then she turns 5 cats into mice. Now her garden has the same number of dogs, cats and mice. How many cats were there at the beginning?  
 A) 4 B) 5 C) 9 D) 10 E) 11

17. With blocks of dimension 1 cm × 1 cm × 2 cm, one builds towers as shown in the picture. How high is a tower that is built in the same way with 28 blocks?



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

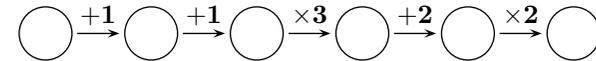
18. Bridget folded a square sheet of paper twice, and then cut it twice as shown in the figure. How many pieces of paper will she get?



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

19. AliBaba and 40 thieves equally divided 42 identical bags of gold coins among themselves. Each of them got one full bag and 2 coins. How many coins did a bag contain?  
 A) 42 B) 40 C) 82 D) 84 E) 41

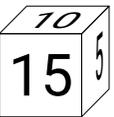
20. Benjamin writes an integer in the first circle and then fills the other five circles by following the instructions. How many of the six numbers in the circles are divisible by 3?



- A) 1 B) Both 1 and 2 are possible C) 2 D) Both 2 and 3 are possible  
 E) Both 3 and 4 are possible

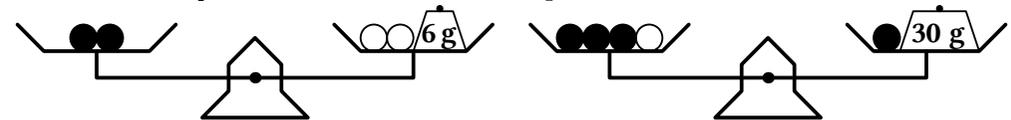
**Questions for 5 points**

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. Alex, Bob and Carl go for a walk every day. If Alex doesn't wear a hat, then Bob wears a hat. If Bob doesn't wear a hat, then Carl wears a hat. Today Bob is not wearing a hat. Who is wearing a hat?

- A) Both Alex and Carl B) Only Alex C) Only Carl D) Only Bob E) It is not possible to determine