Mathematical Kangaroo 2014
Group Benjamin (Grade 5 and 6)
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- 3 Point Questions -

1. Arno lays out the word KANGAROO using 8 cards. However, some cards are turned.

By turning it twice the letter K can be corrected, letter A can be corrected by turning it once (see drawing). How often does he have to turn so that the word KANGAROO can be read correctly?


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

2. A cake weighs 900 g. Paul cuts it into 4 pieces. The biggest piece weights exactly as much as the other three pieces together. How much does the biggest piece weigh?

(A) 250 g   (B) 300 g   (C) 400 g   (D) 450 g   (E) 600 g

3. A white and a grey ring are interlinked with one another. Peter sees the two rings from the front as they are seen in the diagram on the right.
Paul sees the rings from the back. What does he see?
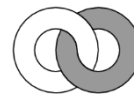
(A)   (B)   (C)   (D)   (E)

4. In the addition sum to the right, three digits have been replaced with stars. How big is the sum of the three missing digits?

$$\begin{array}{r} 1\ *\ 2 \\ +\ 1\ *\ 3 \\ +\ 1\ *\ 4 \\ \hline 3\ 0\ 9 \end{array}$$

(A) 0   (B) 1   (C) 2   (D) 3   (E) 10

5. How big is the difference between the smallest five-digit and the biggest four-digit number?

(A) 1   (B) 10   (C) 1111   (D) 9000   (E) 9900

6. A square with perimeter 48 cm is cut into two equally big pieces with one cut. They are fitted together to make a rectangle as shown in the diagram. How big is the perimeter of that rectangle?

(A) 24 cm   (B) 30 cm   (C) 48 cm   (D) 60 cm   (E) 72 cm
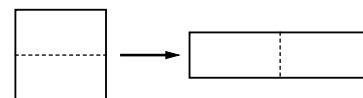
7. Katrin has 38 matches. She uses all the matches and makes a triangle and a square. The triangle and the square do not share any matches. Each side of the triangle consists of 6 matches. One side of the square is made of how many matches?

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

8. Grey and white pearls are threaded on a piece of string.

Monika wants to have 5 grey pearls. However, she can only pull off pearls from the end of the string. Therefore she has to pull off some white pearls as well. What is the minimum number of white pearls she has to pull off, to get 5 grey pearls?

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

**9.** The little witch is taking part in a broomstick flying competition that is carried out in 5 rounds. The times in which she crossed the starting line can be seen in the table. Which round was her fastest?

	Zeit
Start	09:55
nach Runde 1	10:26
nach Runde 2	10:54
nach Runde 3	11:28
nach Runde 4	12:03
nach Runde 5	12:32

(A) the first   (B) the second   (C) the third
(D) the fourth   (E) the fifth

10. Which square has to replace the question mark so that the white area and the black area are equally big?
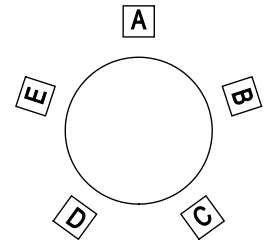
(A)   (B)   (C)   (D)   (E)
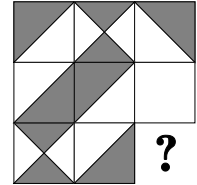
11. In a holiday camp 7 children eat ice cream every day, 9 eat ice cream every other day. The remaining children don't eat ice cream at all. Yesterday 13 children ate ice cream. How many children will eat ice cream today?
(A) 7   (B) 8   (C) 9   (D) 10   (E) 11

12. The kangaroos A, B, C, D and E sit in this order in a clockwise direction around a round table. After a bell sounds all but one kangaroo change seats with a neighbour. Afterwards they sit in the following order in a clockwise direction: A, E, B, D, C.
Which kangaroo did not change places?
(A) A   (B) B   (C) C   (D) D   (E) E

13. A square can be made out of four of the given pieces. Which piece will not be used?

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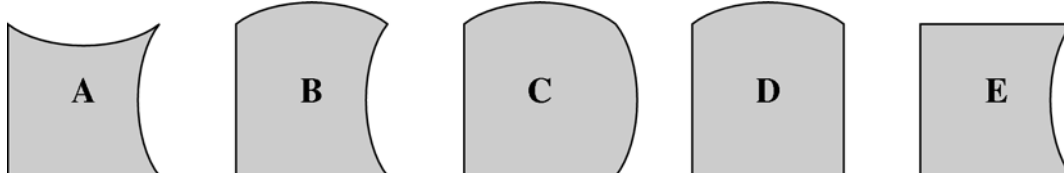
(A) A   (B) B   (C) C   (D) D   (E) E

14. If the three digits of a three-digit number are multiplied you get 135. Which result to you get, by adding the three digits?
(A) 14   (B) 15   (C) 16   (D) 17   (E) 18

15. In a restaurant there are 16 tables, with either 3, 4 or 6 chairs. A total of 36 guests can sit at the tables which have 3 or 4 chairs. The restaurant seats 72 guests. How many tables with three chairs are there?
(A) 4   (B) 5   (C) 6   (D) 7   (E) 8

16. The points A, B, C, D, E, F are situated on a straight line in this order. The following distances on this line are known: $AF = 35$, $AC = 12$, $BD = 11$, $CE = 12$ and $DF = 16$.
How long is the distance BE?
(A) 13   (B) 14   (C) 15   (D) 16   (E) 17

17. Lea plays with her marbles. She places them in small groups on the table. If she places them in groups of three, two marbles are left over. If she places them in groups of five, again two are left over. How many more marbles does Lea need so that she can place them in groups of three as well as groups of five without any marbles being left over?
(A) 3   (B) 1   (C) 4   (D) 10   (E) 13

18. The faces of a die are labelled with the numbers 1, 2, 3, 4, 5 and 6. The faces 1 and 6 have one common edge. The same is true for the faces 1 and 5, the faces 1 and 2, the faces 6 and 5, the faces 6 and 4 and the faces 6 and 2. Which number labels the face that is opposite to face 4?
(A) 1   (B) 2   (C) 3   (D) 5   (E) 6

19. The 3×3×3 cube consists of 27 small cubes. Some of the small cubes are removed. If you now look at the cube from the right, from above and from the front, you see the following:
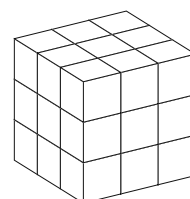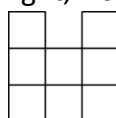
How many little cubes were removed?

(A) 1   (B) 4   (C) 5   (D) 6   (E) 7

20. There are 5 songs on an MP3-player: Song A lasts 3 mins, song B 2 mins 30 s, song C 2 mins, song D 1 min 30 s, and song E 4 mins. These 5 songs are played non-stop one after the other. Song C is playing when Andy left the house. Exactly one hour later he returns. Which song is playing when Andy came back?
(A) A   (B) B   (C) C   (D) D   (E) E

21. Daniela fills a 3×3 table using the digits 1 to 9 so that each field contains only one digit. She has already placed the digits 1, 2, 3 and 4 in the table as shown in the diagram. Two numbers count as "adjacent" if the fields which they fill have one common side. When she has finished filling the table she realised: the sum of the numbers adjacent to 5 is 9. How big is the sum of the numbers adjacent to 6?
(A) 14   (B) 15   (C) 17   (D) 28   (E) 29

22. The king travels with his messengers at a speed of 5 km/h from his castle to his summer residence. Each hour he sends a messenger with a speed of 10 km/h back to the castle. How much difference is time is there between two consecutive messengers arriving at the castle?
(A) 30 min   (B) 60 min   (C) 75 min   (D) 90 min   (E) 120 min

23. Mia writes three single-digit numbers on the board. Ali adds them and gets 15. Then he deletes one of the three numbers and replaces it with the number 3. Resi multiplies these three numbers and obtains 36. Which numbers could Ali have deleted?
(A) either 6 or 7   (B) either 7 or 8   (C) only 6   (D) only 7   (E) only 8

24. Grandma gives 180 marbles to her ten grandchildren. No two children get the same amount of marbles. Anna gets the most. What is the minimum number of marbles that Anna could get?
(A) 19   (B) 20   (C) 21   (D) 22   (E) 23