

# MATHEMATICS KANGAROO 2014

## Austria - 20.3.2014

Group: Écolier, Grades: 3-4

Name:	
School:	
Class:	

Time allowed: 60 min.

Each correct answer, questions 1.-8.: 3 Points

Each correct answer, questions 9.-16.: 4 Points

Each correct answer, questions 17.-24.: 5 Points

Each question with no answer given: 0 Points

Each incorrect answer: Lose  $\frac{1}{4}$  of the points for that question.

You begin with 24 points.



Please write the letter (A, B, C, D, E) of the correct answer under the questions number (1 to 24)

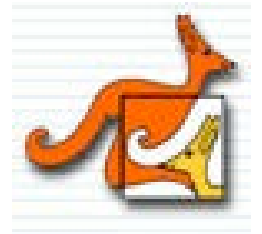
Write neatly and carefully!

1	2	3	4	5	6	7	8

9	10	11	12	13	14	15	16

17	18	19	20	21	22	23	24

**Mathematical Kangaroo 2014**  
**Group Ecolier (Grade 3 and 4 )**  
**Austria – 20.3.2014**



**– 3 Point Questions –**

1. Luisa draws a star.

She cuts a piece out of the middle of the drawing. What does this piece look like?

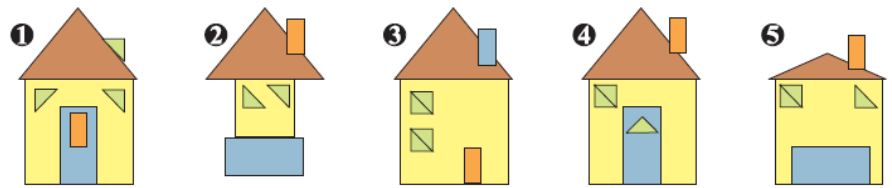


- (A) (B) (C) (D) (E)

2. Marie wants to insert the digit 3 somewhere into the number 2014. Where must she put the digit 3 so that the new number (with all 5 digits) is as small as possible?

- (A) in front of 2014                      (B) between 2 and 0                      (C) between 0 and 1  
 (D) between 1 and 4                      (E) after 2014

3. For which houses, were exactly the same building blocks used?

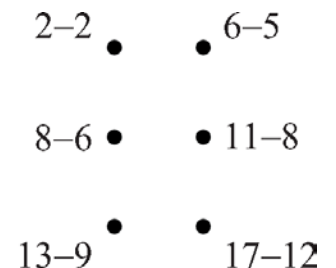


- (A) House 1 and 4  
 (B) House 3 and 4  
 (C) House 1, 4 and 5  
 (D) House 3, 4 and 5                      (E) House 1, 2, 4 and 5

4. Whenever Koko the koala bear is awake, he always eats 50 grams of leaves in one hour. Yesterday Koko slept for 20 hours. How many grams of leaves did he eat yesterday?

- (A) 0 grams                                      (B) 50 grams                                      (C) 100 grams  
 (D) 200 grams                                      (E) 400 grams

5. Christopher solved the sums next to the dots that you can see on the right, and got the answers 0 to 5. He joined the dots in order. He started with the dot that had the answer 0 and finished with the dot that had the answer 5. Which shape was he left with?



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

6. Anita has built fewer sandcastles than Hans but more than Steffan. Fabian has built more sandcastles than Anita and more than Hans. Bruno has built more sandcastles than Hans but less than Fabian. Who has built the most sandcastles?

- (A) Hans                      (B) Anita                      (C) Stefan                      (D) Bruno                      (E) Fabian

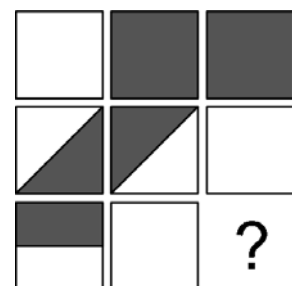
7. Mr Hofer has drawn a picture of flowers on the inside of a display window (large picture). What do these flowers look like when you look at the picture from the outside?



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

8. With which square do you have to swap the question mark, so that the white area and the black area are the same size?

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



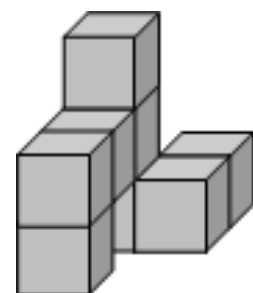
**– 4 Point Questions –**

9. A bowl was full with sweets. Raphael took half of them out. Afterwards Emanuel took out half of the remaining sweets. Now there are only 12 sweets left in the bowl. How many sweets were in the bowl to begin with?

- (A) 12 (B) 18 (C) 20 (D) 24 (E) 48

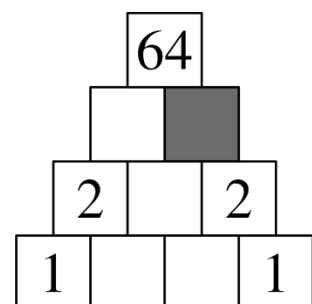
10. The solid in the diagram is made out of 8 identical cubes. What does the solid look like when viewed from above?

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



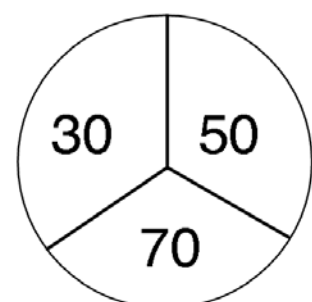
11. Leo writes numbers in the multiplication pyramid. Explanation of the multiplication pyramid: By multiplying the numbers which are next to each other, the number directly above (in the middle) is calculated. Which number must Leo write in the grey field?

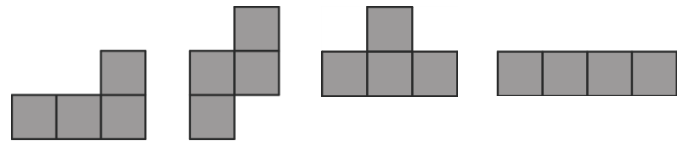
- (A) 0 (B) 1 (C) 2 (D) 4 (E) 8



12. Katja throws darts at the target pictured on the right. If she does not hit the target she gets no points. She throws twice and adds her points. What can her total not be?


- (A) 60 (B) 70 (C) 80 (D) 90 (E) 100

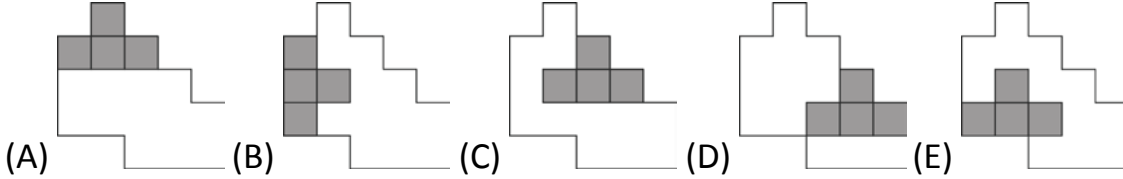




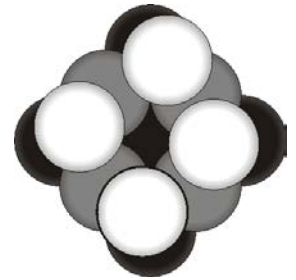
13. Erwin has got the following paper pieces:

With these four pieces he must exactly cover a special shape. In which drawing will he

manage this, if the piece  is placed as shown?



14. Gerhard has the same number of white, grey and black counters. He has thrown some of these circular pieces together onto a pile. All the pieces he has used for this, can be seen in the picture. He has however, got 5 counters left that will not stay on the pile. How many black counters did he have to begin with?



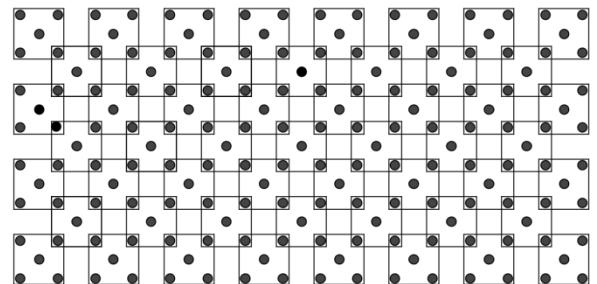
- (A) 5            (B) 6            (C) 7            (D) 15            (E) 18

15. Hubert the rabbit loves cabbages and carrots. In one day he eats either 9 carrots, or 2 cabbages, or one cabbage and 4 carrots. In one week Hubert had eaten 30 carrots. How many cabbages had he in eaten during this week?

- (A) 6            (B) 7            (C) 8            (D) 9            (E) 10

16. How many dots are in the picture?

- (A) 180            (B) 181            (C) 182  
(D) 183            (E) 265

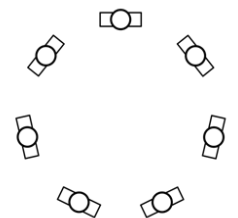


**– 5 point questions –**

17. On the Kangaroo planet each kangoo-year has 20 kangoo-months. Each kangoo-month has 6 kangoo-weeks. How many kangoo-weeks are in a quarter of a kangoo-year?

- (A) 9            (B) 30            (C) 60            (D) 90            (E) 120

18. Seven children stand in a circle. Nowhere are two boys found standing next to each other. Nowhere are three girls found standing next to each other. What is possible for the number of girls? The number of girls can...



- (A) ... only be 3.            (B) ... be 3 or 4.            (C) ... only be 4.  
(D) ... be 4 or 5.            (E) ... only be 5.

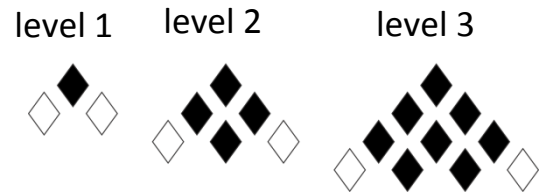
19. Elisabeth sorts the following cards:



With each move she is allowed to swap any two cards with each other. What is the smallest number of moves she needs in order to get the word KANGAROO.

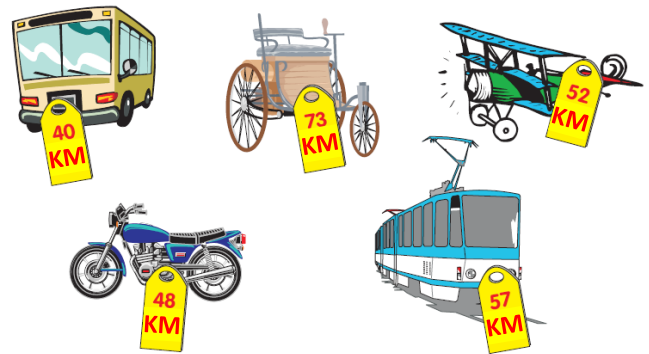
- (A) 2            (B) 3            (C) 4            (D) 5            (E) 6

20. The number of black diamonds  $\blacklozenge$  and white diamonds  $\lozenge$  follow a fixed system. In the picture the first 3 levels are shown. Each level (from the 2<sup>nd</sup> level) has one row more than the level before. For each level the following applies: In the last row both of the outermost diamonds are white, all other diamonds are black. How many black diamonds are there in level 6?



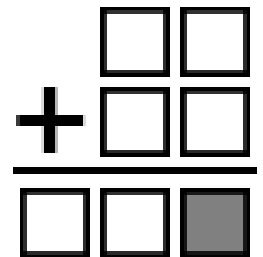
- (A) 19      (B) 21      (C) 26      (D) 28      (E) 34

21. Heinz the kangaroo has bought some toys. For this he gave 150 Kangoo-coins (KC) and received 20 kangoo-coins back. Just before leaving the shop he changed his mind, and exchanged one of the toys he had bought with another one. Therefore he received a further 5 kangoo-coins back from the shopkeeper. Which of the toys in the picture has Heinz taken home with him?




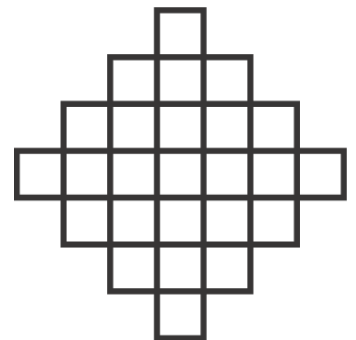
- (A) Carriage and Aeroplane      (B) Carriage and Bus      (C) Carriage and Tram  
 (D) Motorbike and Tram      (E) Bus, Motorbike and Tram

22. In each box exactly one of the digits 0, 1, 2, 3, 4, 5 and 6 is to be written. Each digit will only be used once. Which digit has to be written in the grey box so that the sum is correct?



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

23. In the figure on the right a few of the small squares will be painted grey. In so doing no square  that is made from four small grey squares must appear. At most how many of the squares in the figure can be painted grey?



- (A) 18      (B) 19      (C) 20      (D) 21      (E) 22

24. Albin has put each of the digits from 1 to 9 in the fields of the table. In the diagram only 4 of these digits are visible. For the field containing the number 5, Albin noticed that the sum of the numbers in the neighbouring fields is 13. (neighbouring fields are fields which share a side). He noticed exactly the same for the field containing the digit 6. Which digit had Albin written in the grey field?

1		2
4		3

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