

KÄNGURU DER MATHEMATIK 2018

15. 3. 2018



Level: Ecolier, Grade: 3 – 4

Name:	
School:	
Class:	

Time: 60 min.

24 starting points

Each correct answer to questions 1. – 8.: 3 Points

Each correct answer to questions 9. – 16.: 4 Points

Each correct answer to questions 17. – 24.: 5 Points

Each question left unanswered: 0 Points

Each incorrect answer: $\frac{1}{4}$ of the points for this question are subtracted

Please write the letter (A, B, C, D, E) of the correct answer in the square under the question number (1 to 24). Write clearly 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

Känguru der Mathematik 2018

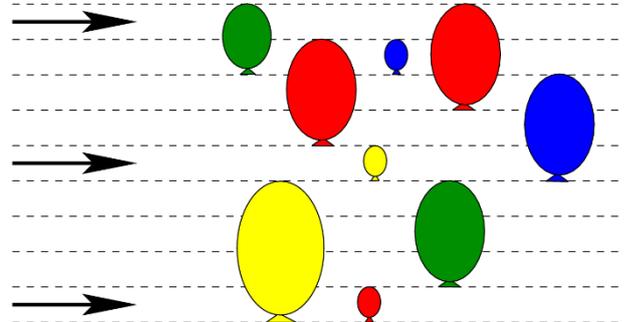
Level Ecolier (Grade 3 and 4)

Austria – 15. 3. 2018



- 3 Point Examples -

1. As seen in the diagram, 3 darts are flying towards 9 fixed balloons. If a balloon is hit by a dart, it bursts and the dart continues in the same direction it had beforehand. How many balloons are hit by the darts?

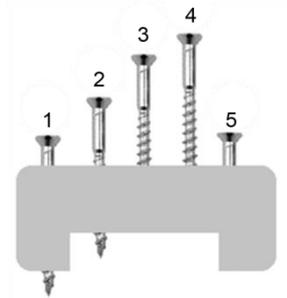


- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

2. Susanne is 6 years old. Her sister Lisa is 2 years younger. Brother Max is 2 years older than Susanne. How old are the 3 siblings altogether?

- (A) 15 (B) 16 (C) 17 (D) 18 (E) 19

3. The diagram shows a wooden block with 5 screws. 4 of which are equally long, one screw is shorter. Which is the shorter screw?



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

4. Leonie has one stamp for each of the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

Using them, she stamps the date of the kangaroo-competition.



How many of the stamps does Leonie use to do that?

- (A) 5 (B) 6 (C) 7 (D) 9 (E) 10

5. On the right you can see a picture of ladybird Sophie. Sophie turns.



Which of the pictures below is not Sophie?

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

6. Lucy folds a piece of paper exactly half way and then cuts out a figure:

Then she unfolds the paper again.

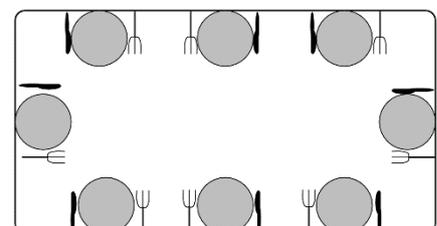
Which of the five pictures can she see?

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

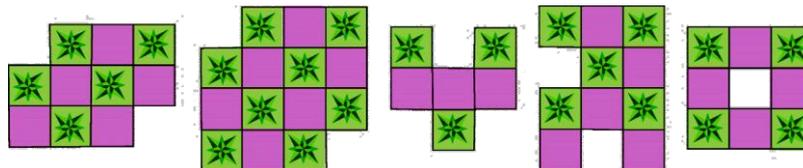
7. Mike sets the table for 8 people: The fork has to lie to the left and the knife to the right of the plate.

For how many people is the cutlery set correctly?

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



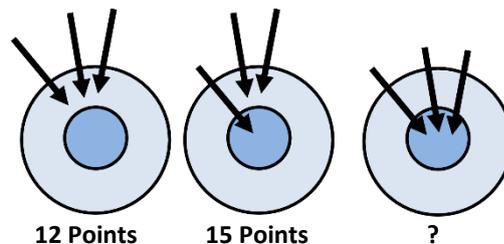
8. Using these tiles   Robert makes different patterns. How many of the patterns shown below can he make?



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

- 4 Point Examples -

9. Diana shoots 3 darts, three times at a target board with two fields. The first time she scores 12 points, the second time 15. The number of points depends on which field she has hit.



How many points does she score the third time?

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

10.

			?	

Albert places these 5 figures , , , , on a 5x5-grid. Each figure is only allowed to appear once in every column and in every row.

Which figure does Albert have to place on the field with the question mark?

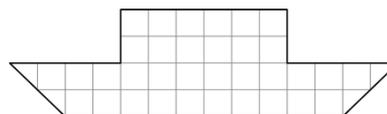
- (A) (B) (C) (D) (E)

11. Tom wants to completely cover his paper boat using the shapes



What is the smallest number of shapes he needs for that?

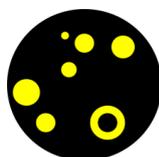
- (A) 5 (B) 6 (C) 7 (D) 8 (E) 9



12. The two colours of this picture are swapped.

Then the picture is turned.

Which of the pictures below is obtained?



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

13.  Felix the rabbit has 20 carrots. Every day he eats 2 of them. He has eaten the 12th carrot on a Wednesday.

On which day of the week did he start eating the carrots?

- (A) Monday (B) Tuesday (C) Wednesday (D) Thursday (E) Friday

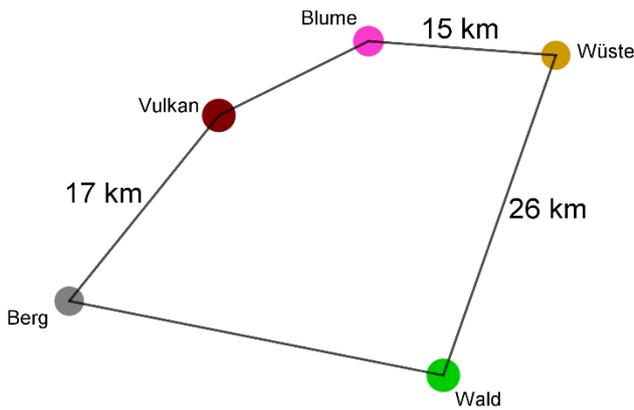
14. A rose bush has 8 flowers on which butterflies and dragonflies are sitting. On every flower there is at most one insect sitting on it. More than half of the flowers are occupied.



The number of butterflies is twice as big as the number of dragonflies.
How many butterflies are sitting on the rose blossoms?

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

15.



The map shows the roundtrip that Captain Bluebear covers during his journey. Three distances are given on the map.

He sails from island to island and starts at the island Berg. In total he covers a distance of 100 km. The distances between the islands Wüste and Wald is equal to the distance between the islands Berg and Blume via Vulkan.

How big is the distance between Berg and Wald?

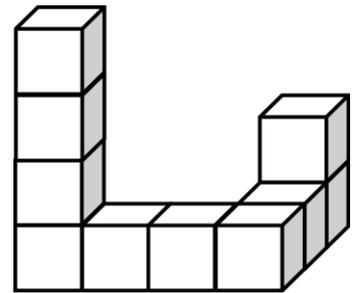
- (A) 17 km (B) 23 km (C) 26 km (D) 33 km (E) 35 km

16. Tobias glues 10 cubes together so that the following object is formed:

He paints all of it, even the bottom.

How many cubes then have exactly 4 faces coloured in?

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



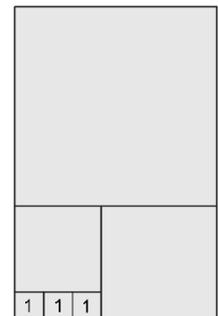
- 5 Point Examples -

17. The big rectangle consists of various squares of different sizes.

Each of the three smallest squares has area 1.

How big is the area of the big rectangle?

- (A) 65 (B) 71 (C) 77 (D) 87 (E) 98



18. In order to slay a dragon, Mathias has to cut off all of its heads. As soon as he has cut off 3 heads, a new one grows back immediately. After Mathias has cut off 13 heads the dragon is dead.

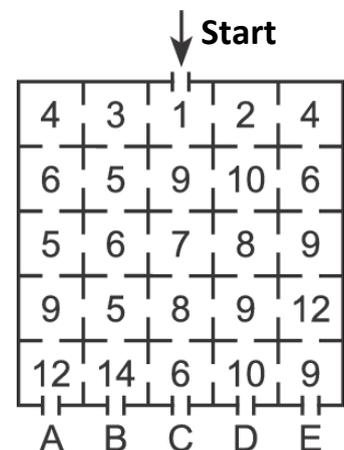
How many heads did the dragon have initially?

- (A) 8 (B) 9 (C) 10 (D) 11 (E) 12

19. The rooms in Kanga's house are numbered. Eva enters the house through the main entrance. Eva has to walk through the rooms in such a way that each room that she enters has a number higher than the previous one.

Through which door does Eva leave the house?

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



20. The symbols     stand for one of the digits 1, 2, 3, 4 or 5.
It is known that

$$\text{atom} + \text{atom} = \text{fish} \quad \text{sun} + \text{sun} = \text{atom} \quad \text{sun} + \text{fish} = \text{fish}$$

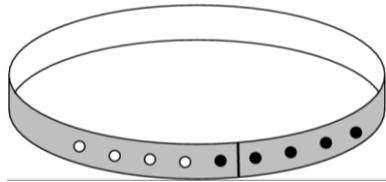
Which symbol stands for the digit 3?

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

21. A belt can be joined together in 5 different ways.

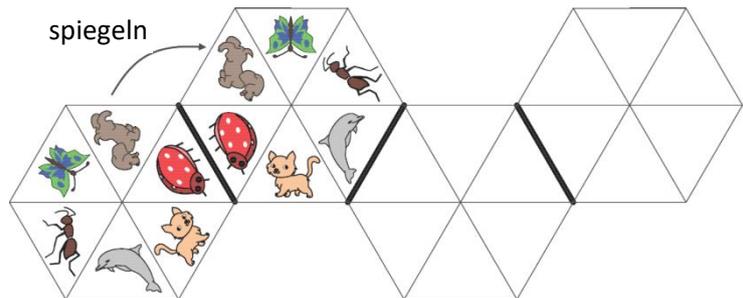


How many cm is the belt longer if it is only closed in the first hole instead of in all 5 holes?



- (A) 4 cm (B) 8 cm (C) 10 cm (D) 16 cm (E) 20 cm

22. A decorated glass tile is mirrored several times along the boldly printed edge. The first mirror image is shown.

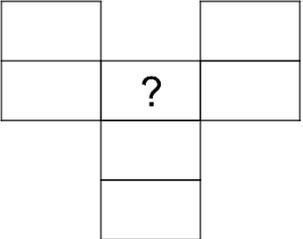


What does the tile on the far right look like after the third reflection?

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

23. Lea should write the numbers 1 to 7 in the fields of the given figure. There is only one number allowed in every field.

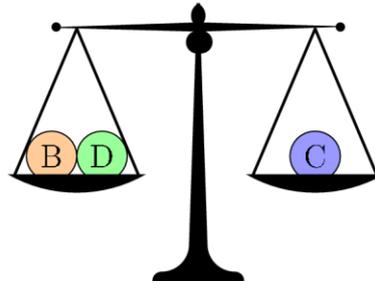
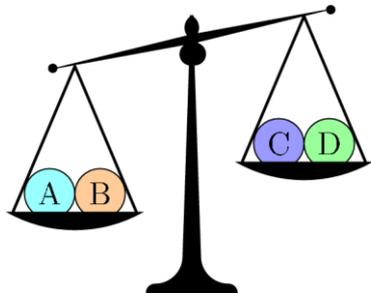
Two consecutive numbers are not allowed to be in adjacent fields. Two fields are adjacent if they have one edge or one corner in common.



Which numbers can she write into the field with the question mark?

- (A) all 7 numbers (B) only odd numbers (C) only even numbers (D) the number 4 (E) the numbers 1 or 7

24. Each of the four balls weighs either 10 or 20 or 30 or 40 grams.
Which ball weighs 30 grams?



(A) A

(B) B

(C) C

(D) D

(E) It can be A or B.