Känguru der Mathematik 2019
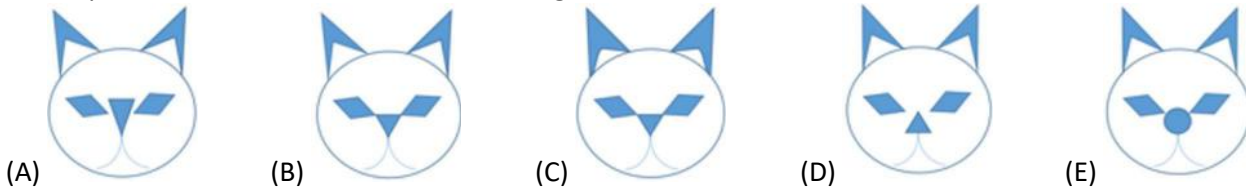# Level Benjamin (Schulstufe 5 and 6)
Austria – 21. 3. 2019

- 3 Point Examples -

1. Carina has started to draw a cat.　　　She then adds some eyes.
Which picture could show her finished drawing?

(A)　　　　(B)　　　　(C)　　　　(D)　　　　(E)

2. The Mayas used points and lines to write numbers. A point stands for 1, a line for 5.
Which of the following Maya-numbers stands for 17?
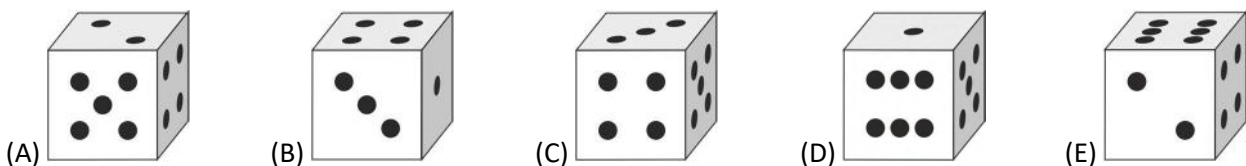
(A)　　　　(B)　　　　(C)　　　　(D)　　　　(E)

3. In a nursery group there are 14 girls and 12 boys. Half of the group go for a walk.
What is the minimum number of girls that have to be amongst that group?
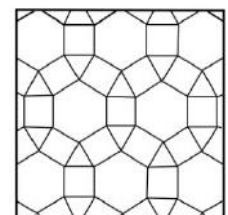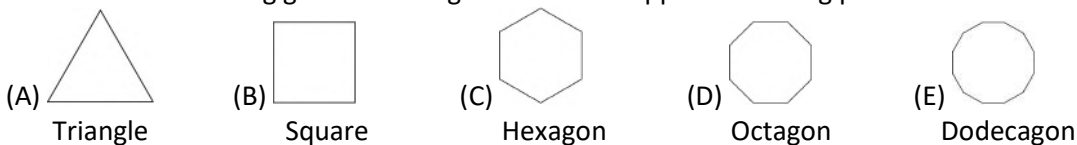(A) 5　　　　(B) 4　　　　(C) 3　　　　(D) 2　　　　(E) 1

4. A digital clock shows the following time:
What time is it when it uses the exactly same digits again for the first time after that?
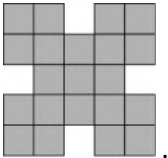
(A)　　　　(B)　　　　(C)　　　　(D)　　　　(E)

5. The sum of the dots on opposite sides of an ordinary die is 7.
Which of the following dice could be an ordinary die?

(A)　　　　(B)　　　　(C)　　　　(D)　　　　(E)

6. Which of the following geometrical figures does not appear in the big picture?

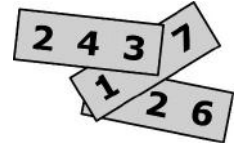(A) Triangle　　　(B) Square　　　(C) Hexagon　　　(D) Octagon　　　(E) Dodecagon

7. In an enclosure there is a group of kangaroos. If you add up the ages of all kangaroos you get 36 years. In two years all the kangaroos together will be 60 years old.
How many kangaroos are in the enclosure?
(A) 12　　　　(B) 15　　　　(C) 18　　　　(D) 20　　　　(E) 24

8. Laura wants to colour in exactly one 2×2 square ▨ in the figure given ⬛. How many ways are there for her to do that?

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

- 4 Point Examples -

9. On each of the three separate pieces of paper there is a three-digit number. The sum of the three numbers is 826.
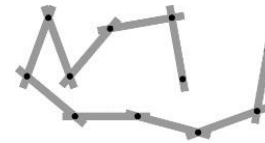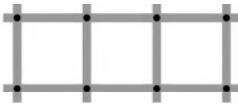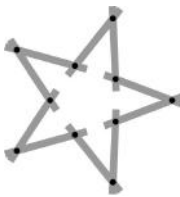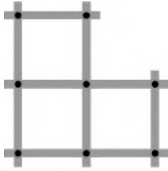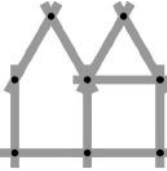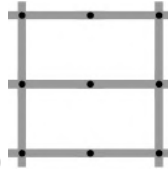What is the sum of the two hidden digits?

(A) 7   (B) 8   (C) 9   (D) 10   (E) 11

10. The six smallest odd natural numbers are written on the sides of a die. Toni rolls the die three times and adds the numbers. Which sum will Toni not be able to make?
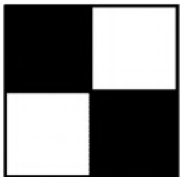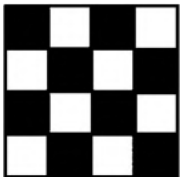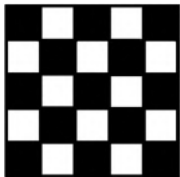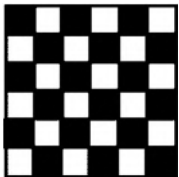
(A) 3   (B) 19   (C) 21   (D) 29   (E) 35

11. Pia has a folding yardstick consisting of 10 equally long pieces. Which of the following figures can she not make?
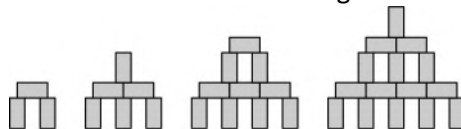
(A)   (B)   (C)   (D)   (E)

12. Which of the five squares has the biggest proportion of black area?

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

13. In a witch's garden there are 30 animals: dogs, cats and mice. The witch changes 6 dogs into 6 cats and then 5 cats into 5 mice. Now there is an equal number of dogs, cats and mice.
How many cats were there to start with?

(A) 4   (B) 5   (C) 9   (D) 10   (E) 11

14. Maxi builds towers made up of little 1 cm × 1 cm × 2 cm building blocks as can be seen in the picture.
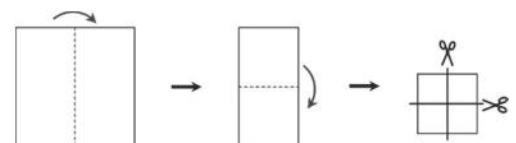
He continues to build his towers in the same way. Finally he uses 28 building blocks for one tower.
What is the height of this tower?

(A) 9 cm   (B) 10 cm   (C) 11 cm   (D) 12 cm   (E) 14 cm
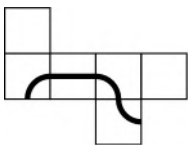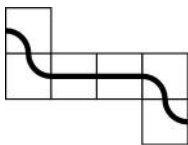
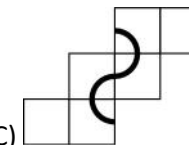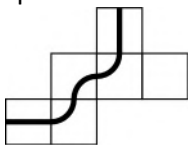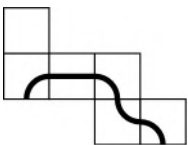**15.** Bridget folds a square piece of paper twice and subsequently cuts it along the two lines as shown in the picture.
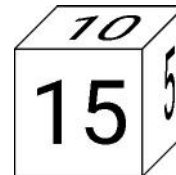How many pieces of paper does she obtain this way?

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

16. Each of the nets of a cube has a line drawn on.
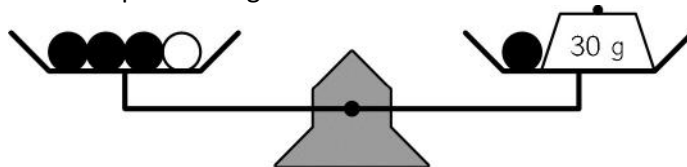For which net does the line form a closed loop when the net is folded up to make a cube?
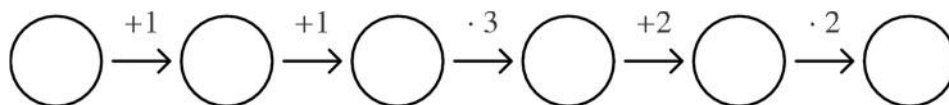
(A)   (B)   (C)   (D)   (E)

17. A natural number greater than 0 is written on each side of the die shown.
All products of opposite numbers are of the same value.
What is the smallest possible sum of all 6 numbers?
(A) 36 (B) 37 (C) 41 (D) 44 (E) 60

18. 4 equally heavy black pearls, 1 white pearl and a piece of iron weighing 30 g are placed on a beam balance as shown in the diagram. The beam balance is balanced.
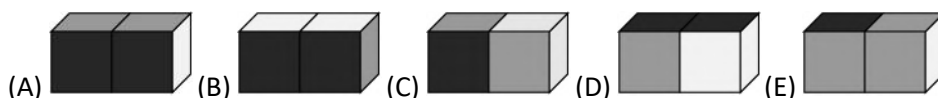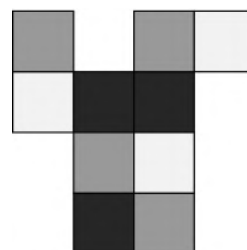How heavy are 6 black and 3 white pearls altogether?

(A) 100 g (B) 99 g (C) 96 g (D) 94 g (E) 90 g

19. Robert makes 5 statements. One of which is wrong.

(A) My son Basil has 3 sisters.
(B) My daughter Ann has 2 brothers.
(C) My daughter Ann has 2 sisters.
(D) My son Basil has 2 brothers.
(E) I have 5 children.

Which statement is wrong?
(A) Statement A (B) Statement B (C) Statement C (D) Statement D (E) Statement E

20. Benjamin writes a number into the first circle. He then carries out the calculations as instructed and each time writes down the results in the respective circles.
How many of the six numbers are divisible by 3?

(A) 1 (B) 2 (C) 1 or 2 (D) 2 or 3 (E) 3 or 4

21. Emil takes selfies with his 8 cousins. Each one of the 8 cousins are on two or three of the pictures.
There are exactly 5 cousins on each of the pictures.
How many selfies does Emil take?
(A) 3 (B) 4 (C) 5 (D) 6 (E) 7

22. The cardboard is folded up into a $2 \times 1 \times 1$ box.
Which of the pictures does not show the box?

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

23. Jette and Willi throw balls at two identically built pyramids each made up of 15 tins. Jette hits 6 tins and gets 25 points. Willi hits 4 tins.
How many points does Willi get?
(A) 22 (B) 23 (C) 25 (D) 26 (E) 28

nach Jettes Wurf   nach Willis Wurf

24. Linus builds a $4 \times 4 \times 4$ cube made up of 32 white and 32 black $1 \times 1 \times 1$ cubes. He arranges the cubes so that the surface of the big cube has as much white as possible.
Which fraction of the surface is white?
(A) $\frac{3}{4}$ (B) $\frac{2}{3}$ (C) $\frac{1}{2}$ (D) $\frac{3}{8}$ (E) $\frac{1}{4}$