

Year 5 and 6 (ENGLISH VERSION)

Thursday, 17th March 2016

Time allowed: 75 minutes

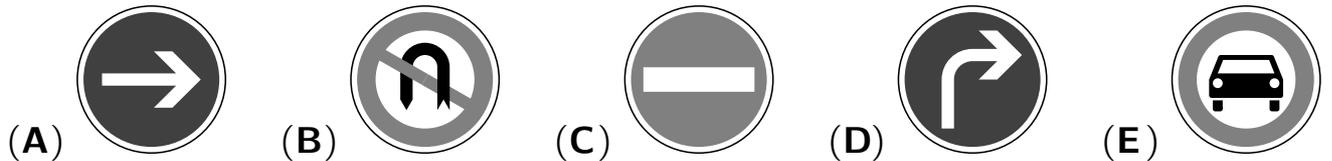
1. For each question exactly one of the 5 options is correct.
2. Each participant is given 24 points at the beginning. For each correct answer 3, 4 or 5 points are added. No answer means 0 points are added. If a wrong answer is given, one quarter of the points is subtracted, i. e. 0.75 points, 1 point or 1.25 points, respectively. At the end, the maximum number of points is 120, the minimum is 0.
3. Calculators are not allowed.

3 point problems

A1 $17 \times 3 + 2016 =$

- (A) 2061 (B) 2063 (C) 2065 (D) 2067 (E) 2069

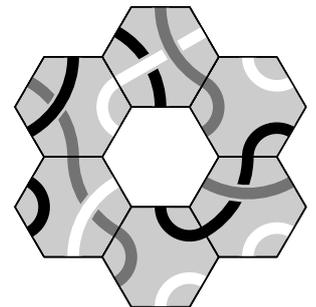
A2 Which of the following traffic signs has the largest number of lines of symmetry?



A3 Noah cuts a cake into 4 equal parts. Then he cuts each quarter into 3 pieces. How many pieces of cake in total does Noah obtain?

- (A) 6 (B) 8 (C) 9 (D) 10 (E) 12

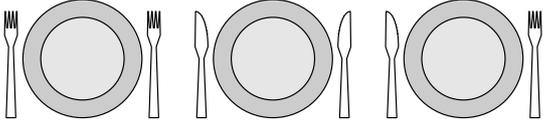
A4 Which of the following tiles fits in the middle of the puzzle such that black lines meet black lines, grey lines meet grey lines and white lines meet white lines?



A5 On the left side of their room in a youth hostel, Bea and Pia are sleeping with their heads on their pillows facing each other. On the right side of the room, Lea and Cara are sleeping with their heads on their pillows with their backs to each other. How many girls are sleeping with their right ears on their pillows?

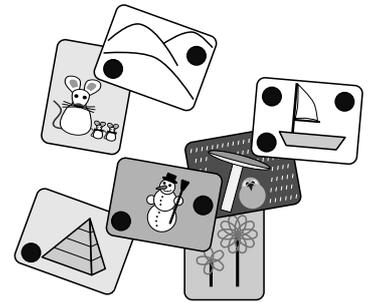


- (A) none (B) one (C) two (D) three (E) all four

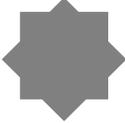
- A6** When Alice set the table she placed the cutlery in the wrong order. There should be a knife on the right side of each plate and a fork on the left side.  How many interchanges of a knife and a fork must Alice make in order to get it right?
- (A) 1 (B) 2 (C) 3 (D) 5 (E) 7

- A7** A centipede has 40 pairs of shoes. It needs one shoe for each of its 100 feet. How many more shoes does the centipede need to buy?
- (A) 10 (B) 20 (C) 40 (D) 50 (E) 60

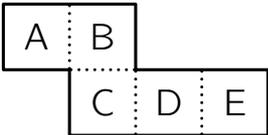
- A8** On Lisa's refrigerator, 8 strong magnets hold some postcards, as shown on the right. What is the largest number of magnets that Lisa could remove so that no postcard falls to the ground?
- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

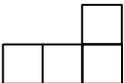
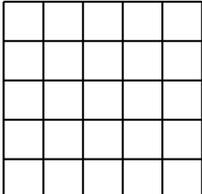


4 point problems

- B1** Chaina has two identical squares, as shown on the right. Which of the following figures can she not get by putting them on top of each other? 
- (A)  (B)  (C)  (D)  (E) 

- B2** Mary, Ann and Nata work in a kindergarten. Each day from Monday to Friday exactly 2 of them come to work. Mary works 3 days per week and Ann works 4 days per week. How many days per week does Nata work?
- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

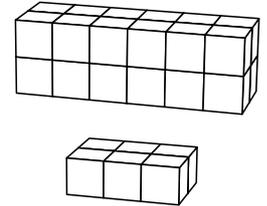
- B3** The piece of paper shown is folded along the dotted lines to make an open box. The box is put on a table with the top open. Which face is at the bottom of the box? 
- (A)  (B)  (C)  (D)  (E) 

- B4** What is the largest number of shapes of the form  that can be cut out of the piece of squared paper shown on the right? 
- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7

B5 There are 36 pupils in a school choir. During choir practice they sit in pairs so that each boy is sitting with a girl, and exactly half of the girls are sitting with a boy. How many boys are there in the school choir?

- (A) 12 (B) 14 (C) 15 (D) 17 (E) 18

B6 Kalil and Jolanda want to build a cuboid using the same number of identical cubes. Kalil's box is already finished, as shown in the top picture on the right. The bottom picture shows the first level of Jolanda's box. How many levels will Jolanda's box have?

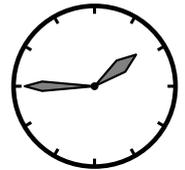


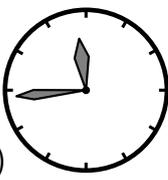
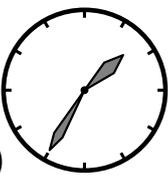
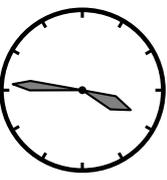
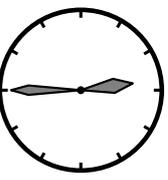
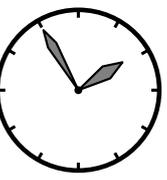
- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

B7 The number 2581953764 is written on a strip of paper. John cuts the strip twice and gets 3 numbers. What is the smallest possible sum that these 3 numbers can have?

- (A) 2975 (B) 3775 (C) 4298 (D) 4217 (E) 2878

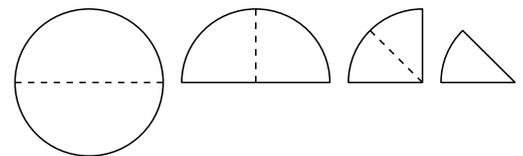
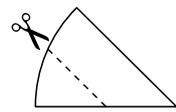
B8 Konstantin is getting his hair cut. In the mirror he sees the clock, as shown on the right. What would Konstantin have seen if he had looked in the mirror ten minutes earlier?



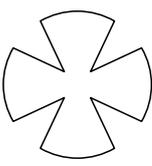
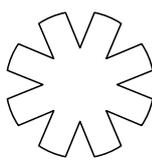
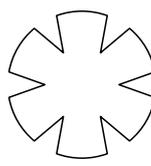
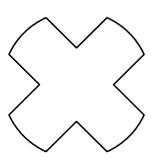
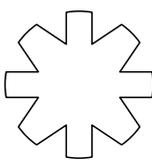
- (A)  (B)  (C)  (D)  (E) 

5 point problems

C1 Lara folds a round sheet of paper, as shown on the right. Then she cuts off a corner of the folded paper along the marked line:



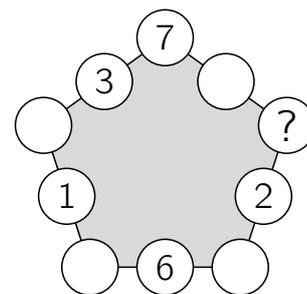
What does Lara get when she unfolds the paper?

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

C2 Yannis, David and Fabian are triplets. Their brother Carl is 3 years younger than them. One of the following numbers is the sum of the ages of the 4 brothers. Which one?

- (A) 53 (B) 55 (C) 56 (D) 59 (E) 60

- C3** Paola wrote numbers in 5 of the 10 circles, as shown on the right. She wants to write a number in each of the remaining 5 circles such that the sums of the 3 numbers along each side of the pentagon are equal. Which number must she write in the circle with the question mark?

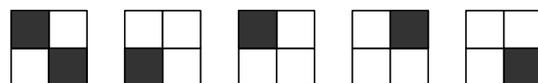


- (A) 7 (B) 8 (C) 11 (D) 13 (E) 15

- C4** Marla started a small café. Her friend Pietro gave her some square tables and chairs. If she used all the tables as single tables with 4 chairs each, she would need 6 more chairs. If she used all the tables as double tables with 6 chairs each, she would have 4 chairs left over. How many tables did Marla get from Pietro?

- (A) 8 (B) 10 (C) 12 (D) 14 (E) 16

- C5** A big cube was built from 8 identical small cubes, some black ones and some white ones. Five faces of the big cube are shown on the right. What does the sixth face of the big cube look like?



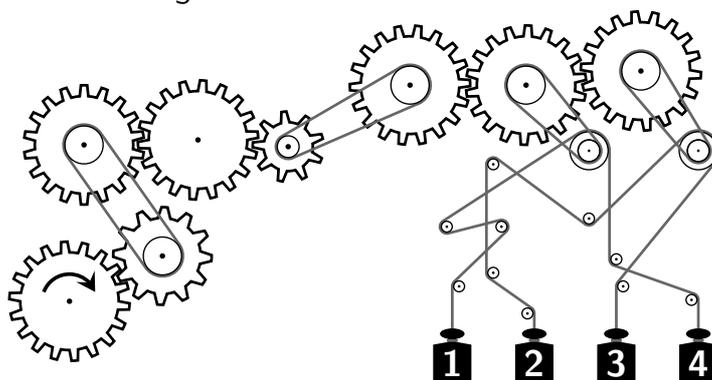
- (A) (B) (C) (D) (E)

- C6** A blackbird, a thrush, a finch and a starling are sitting in a straight line. The blackbird and the thrush sit 1 m apart, the thrush and the finch 2 m, the finch and the starling 3 m, and the starling and the blackbird 4 m. Which two birds are farthest apart?

- (A) starling and blackbird (B) thrush and starling (C) thrush and finch
(D) blackbird and finch (E) finch and starling

- C7** Which two weights are going upwards, when the lower left wheel is turned in direction of the arrow?

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



- C8** Carl wants to colour each of the vertices A, B, C, D of a square $ABCD$ either yellow, blue or red, such that neighbouring vertices have different colours. In how many different ways can Carl do this?

- (A) 12 (B) 15 (C) 18 (D) 20 (E) 24