

Tasks T1 - T8 carry 3 points each

T1. Counting

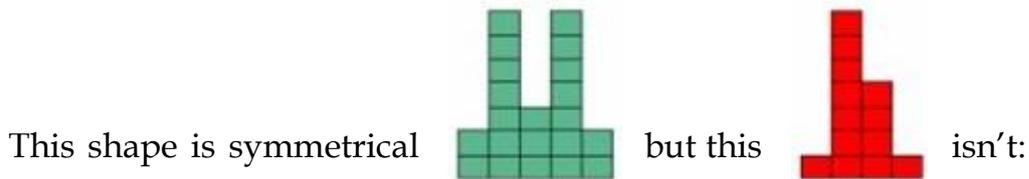
Harry makes a square as in the picture. How many matches does he need, in order to draw 3 squares like this?



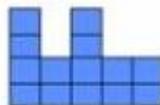
- A) 8 B) 10 C) 12 D) 14

T2. Symmetry

Anna and Inna have some colourful cubes that if put together make up towers. The towers are placed next to each other. A shape is symmetrical if, when rotated, it remains the same shape.



The girls notice that their construction could be symmetrical if they complete the towers with few more cubes. What is the minimum number of cubes necessary to complete the figure below, in order to make it a symmetrical figure?

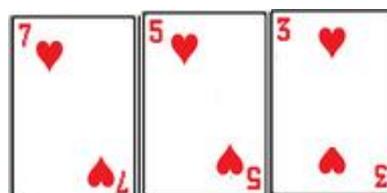
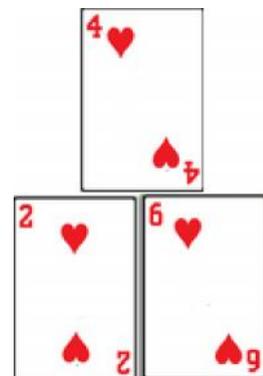


- A) 1 B) 2 C) 3 D) 4

T3. Optimization and Sorting

Baby Beaver plays with cards which have numbers on them. He arranges one card in a first row, two cards in a second row and three cards in a third row.

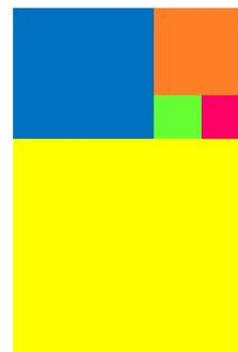
What is the maximum sum of numbers obtained if he chooses a single card from each row?



- A) 14 B) 15 C) 16 D) 17

T4. Visualization

Elena draws two coloured squares, one green and one pink, each with side length equal to one. Above them she draws an orange square with side length equal to 2, and next to that, a blue square of side length equal to 3. Beneath all of this, Elena draws a yellow square, as shown in the figure. What is the length of the yellow square side, coloured by Elena?



- A) 3 B) 4 C) 5 D) 6

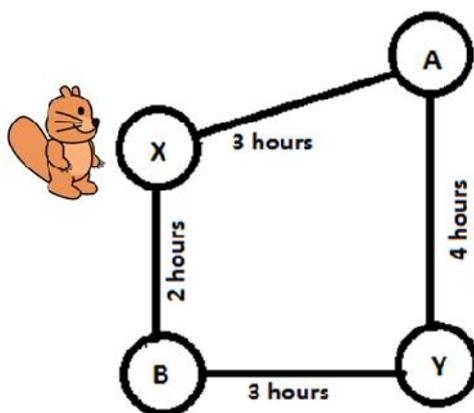
T5. Counting

Bob and Grace painted grandma's fence: Grace painted the first board red, with Bob painting the next two boards blue; then Grace continues to paint the next plank green and Bob paints the next three orange. How many boards are left for Grace to paint, if grandma has 10 planks fence?

- A) 2 B) 3 C) 4 D) 5

T6. Comparing and Sorting

Baby Beaver wants to travel from city X to city Y. If in the Beaver Land there are 4 cities, and the time necessary to travel from a city to the other is shown in the map bellow, what is the minimum time Baby Beaver needs to travel from X to Y?



- A) 4 B) 5 C) 6 D) 7

T7. Comparison

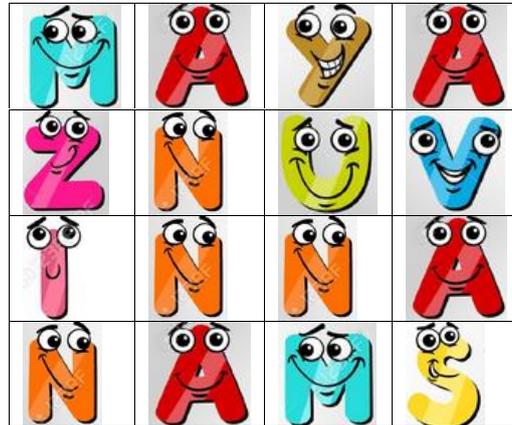
Flaviu is 6 years old and his brother Karol is 4 years old. Which child is older and by how much?

- A) Flaviu is older by 3 years
B) Karol is older by 2 years
C) Karol is older by 3 years
D) Flaviu is older by 2 years



T8. Arrangements

MAYA, ANNA and INNA are playing with letters. They place them in rows and columns, as in the picture below. Funny, they notice that some letters form their names, if read from left to right or top to bottom. Which are the girls who find their name in this arrangement?



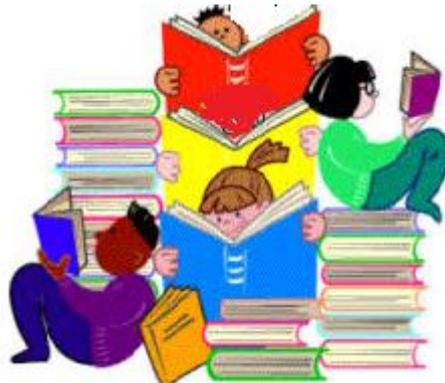
- A) MAYA, INNA, ANNA
- C) INNA, ANNA

- B) MAYA, INNA
- D) MAYA, ANNA

Tasks T9 - T16 carry 4 points each

T9. Sorting

During the first week of vacation, Inna read two stories, Arthur read four stories, Bob six, and Maya read three stories. What is the order of the children, starting with the one with the least stories read?



- A) Inna, Arthur, Bob, Maya
- C) Inna, Maya, Bob, Arthur

- B) Inna, Maya, Arthur, Bob
- D) Maya, Ina, Bob, Arthur

T10. Logical Calculation

How many 2-liter water bottles must Lisa open, in order to fill a 9-liter pot?



- A) 3 B) 4 C) 5 D) 6

T11. Patterns And Sequence

In the Land of Beavers, the houses are labelled in a funny way. Each house has a label with two digits, the first digit represents the number of adults, and the second digit represents the number of the baby beavers living in the house. On the main street there are five houses labelled 12, 13, 24, 22, 31. How many baby beavers live on the main street?



- A) 10 B) 11
C) 12 D) 13

T12. Sorting

In the country of Dragons, Dragon-Princess decided to get married. Dragon-Knights came from all over the province to conquer her heart. But the Dragon-Princess was picky, she only likes dragons with an even number of heads. Out of all the candidates with an even number of heads, she chooses the one with the most heads.

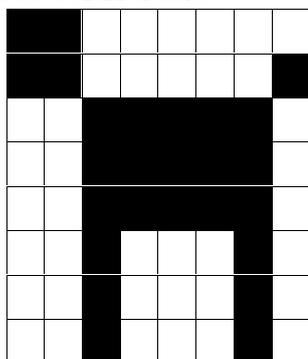
Which of the following Dragons-Knights has conquered the Dragon-Princess' heart?

The one with five heads, four heads, six heads, three heads, two heads or seven heads?

- A) The Dragon-Knight with 4 heads
B) The Dragon-Knight with 5 heads
C) The Dragon-Knight with 6 heads
D) The Dragon-Knight with 7 heads

T13. Visualization and Computer Graphics

Mary is passionate about photography and numbers. She encoded a black and white photo with values of 0 and 1, where 1 represents black, and 0 represents white. The example shown below is one where Mary coded a photo with a cat.



1	1	0	0	0	0	0	0
1	1	0	0	0	0	0	1
0	0	1	1	1	1	1	0
0	0	1	1	1	1	1	0
0	0	1	1	1	1	1	0
0	0	1	0	0	0	1	0
0	0	1	0	0	0	1	0
0	0	1	0	0	0	1	0

How many different objects are encoded by Mary in the following picture?

1	1	0	0	0	0	0
1	1	0	0	0	0	0
0	0	0	1	1	1	1
0	0	0	1	1	1	1
0	0	0	1	1	1	1
0	0	0	0	0	0	0
0	0	0	0	0	0	0

- A) 1 B) 2 C) 3 D) 4

T14. Simple Calculations

Baby Beaver plays with 9 cards on which the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 are written. He thinks about arranging them on 3 lines and 3 columns so that the sums on each line and each column are equal, but he gets stuck. He doesn't know where to place figures 5 and 8. Which version is correct?

4	3	
9		1
2	7	6

A)

4	3	5
9	8	1
2	7	6

B)

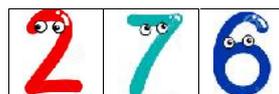
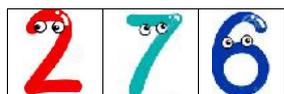
4	3	8
9	5	1
2	7	6

C)

4	3	1
9	5	8

D)

4	5	1
9	3	8



T15. Combinations

Pino just learned the digits, but he can only recognize 2 and 3. How many 2-digit numbers can be formed with the digits known by Pino?

- A) 1 B) 2 C) 3 D) 4

T16. Arrangements

A number is a palindromic number if it reads the same forward and backward. For example, 17371 or 2332 are palindromic numbers, but 14714 is not. Which of the following sequence of digits, can be rearranged and form a palindromic number:

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

Tasks T17 - T24 carry 5 points each

T17. Combinations

Baby Dragon has short legs; so the only way he can go up a stair case is by taking maximum 2 steps at a time. For example, a single-step stair case can be climbed in a single way (one small step), two-stepped stair case can be climbed in two ways (two small steps or one large step). In how many ways can he climb a three-step stair case, and which are those?

- A) 2 (three small steps, one large step and one small step) B) 3 (three small steps, one large step and one small step, one small step and one large step)
C) 3 (three small steps, two large steps and one small step, one small step and two large steps) D) 2 (two small steps, and one large step, one large step and two small steps)

T18. Sorting

An old Magician wants to prepare a magic medicine. For one dose, he needs 3 magic mushrooms. A mushroom is magic if the number of bullets on its hat is 2 or 3 or 5 or 7. A student of the Magician collects 10 mushrooms, some magic and some not. The Magician wants to find out how many doses of medicine he can prepare from the mushrooms collected and how many mushrooms are useless. In the picture below, the 10 mushrooms picked by the student are shown:

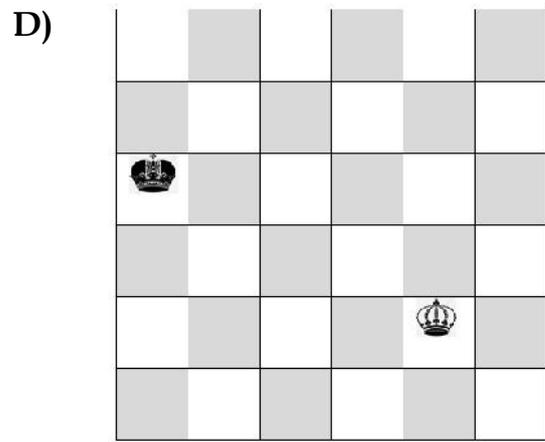
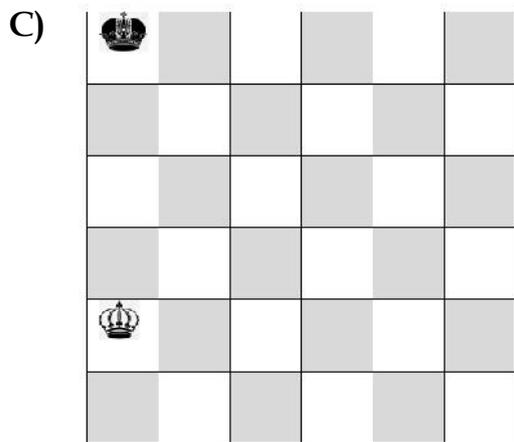
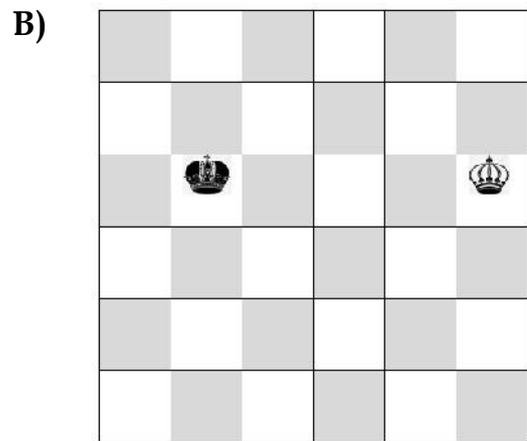
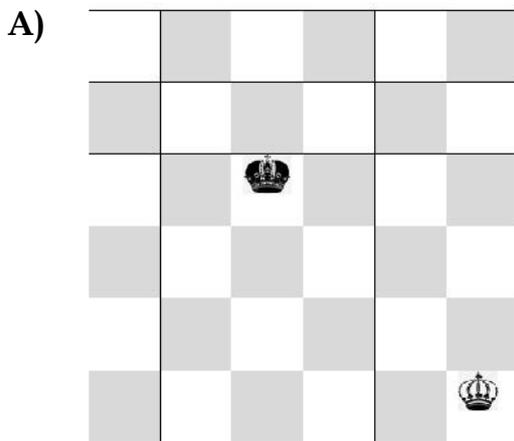


- A) 2 doses, and 4 mushrooms are useless

- B) 1 dose, and 5 mushrooms are useless
- C) 3 doses, and 6 mushrooms are useless
- D) 2 doses, and 3 mushrooms are useless

T19. Visualization

Jane learned how to play chess (but because she is only a baby, she plays on a small chessboard, with only six lines and six columns). She only likes the two queens, white queen and black queen. Knowing that they attack each other if located on the same row, same column or on the same diagonal, which is correct configuration of the chessboard, where the two queens didn't attack each other?



T20. Combinations

At a chess competition four children took part. Each of the children plays one game with every other competitor. How many games are played in total?

- A) 4
- B) 5
- C) 6
- D) 7

T21. Combinations

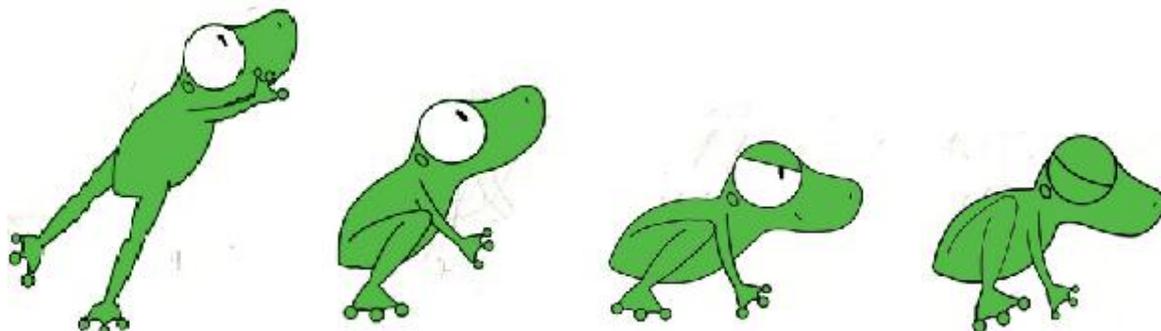
Anna is friend with Inna. Maya is a friend of Anna. Corinne is friend with Cliff. Cliff is a friend of Brian. Knowing that my friend's friend is my friend, which of the following statement is true?

- A) Inna is friend with Cliff
- C) Maya is friend with Corinne

- B) Inna is friend with Brian
- D) Inna is friend with Maya

T22. Simple Algorithm

A frog moves in jumps. After each jump, the frog gets tired and its jumping length decreases by one centimeter. If the first bounce is 10 centimetres, how many jumps does it take to travel 34 centimetres?



- A) 3
- B) 4
- C) 5
- D) 6

T23. Sequences

Maya says 1. Brian says 1. Maya says 2. Bryan says 3. Maya says 5. Brian says 8. Maya says 13. Brian says...



- A) 20
- B) 21
- C) 22
- D) 23

T24. Pattern

In the land of dragons, Baby Dragon learned in school the operation named Funny  as shown in the example below:

$$4 \text{  3 = 71$$

$$6 \text{  3 = 93$$

$$5 \text{  2 = 73$$

Help Baby Dragon to determine how much is $4 \text{  2$ in dragon land?

- A) 62
- B) 72
- C) 82
- D) 92