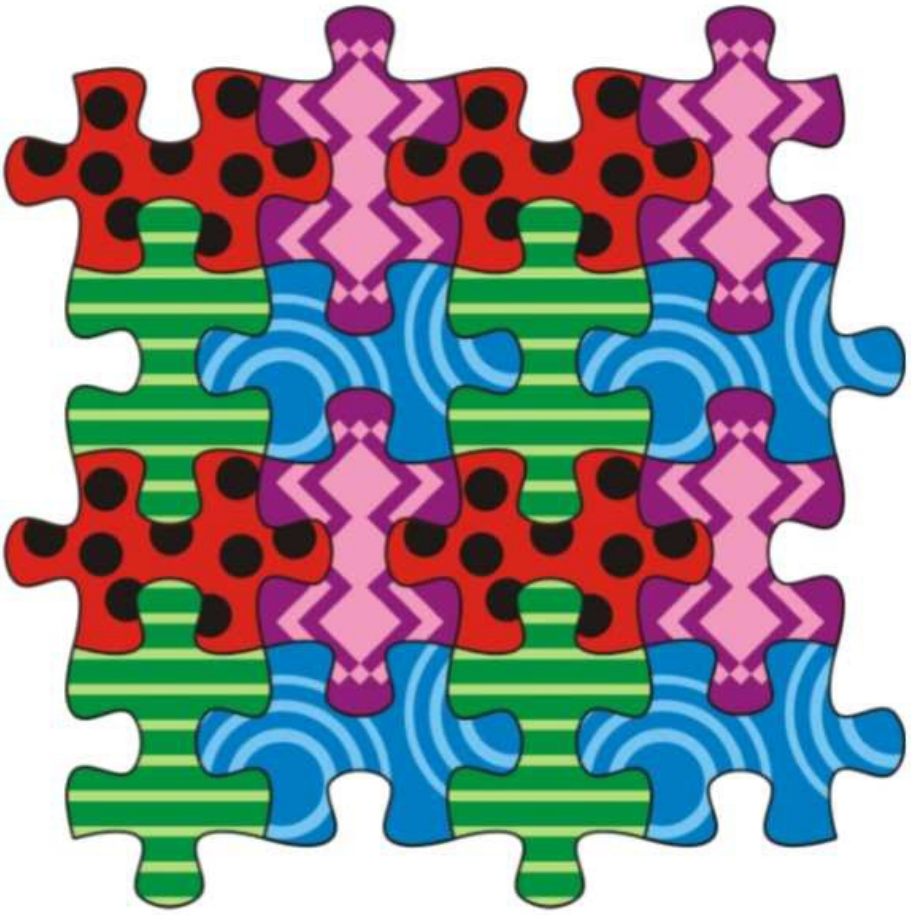
Tasks T1 - T8 carry 3 points each

T1: Puzzle square

Little beaver has 16 puzzle pieces arranged in piles as shown in the picture.

Question

She would like to make a square. What is the least number of puzzle pieces which beaver has to rotate in order to put them into a square as shown below?



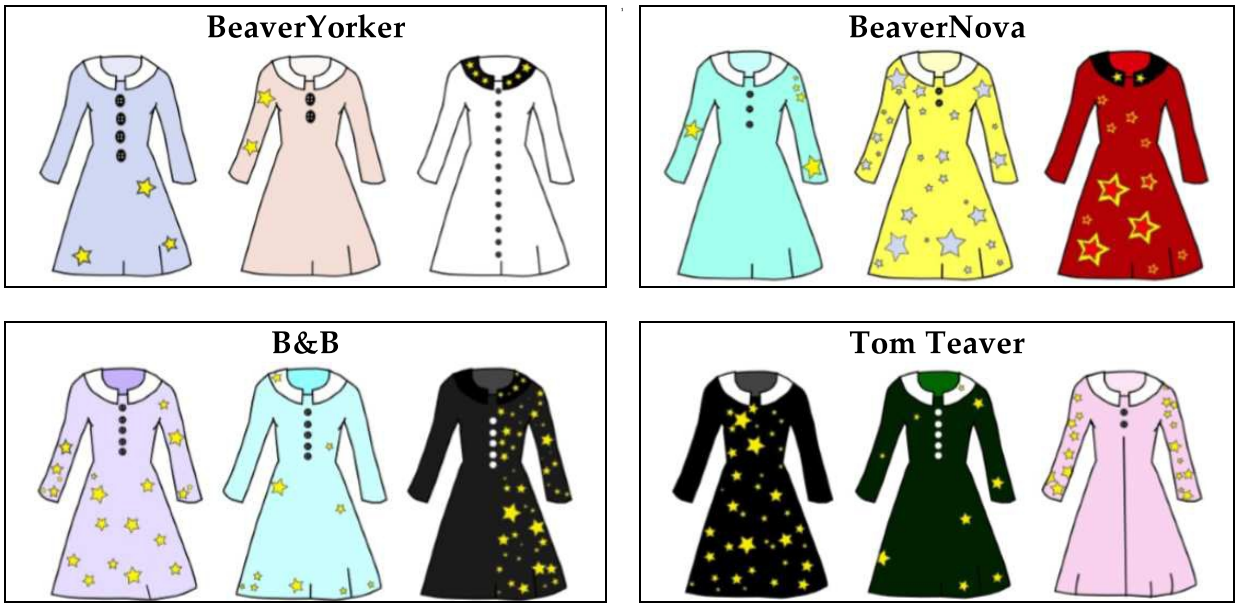
A) 6 **B)** 7
C) 8 **D)** 9

T2: Dream coat

Kate wants to buy a dream coat, which should:

- be in light colour
- have more than 3 buttons
- have stars on its sleeves.

Kate visited four shops that offer coats:



Question

In which of these shops can Kate buy her dream coat?

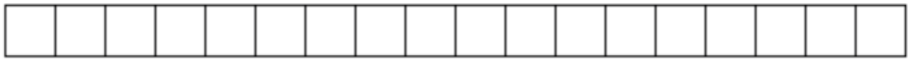
A) BeaverYorker **B)** Beaver Nova
C) B&B **D)** Tom Teaver

T3: Spreading-Secret

In each white square below lives a single Beaver.

Beavers cannot keep secrets.

If you tell a beaver a secret today, you will find that tomorrow all beavers in adjacent squares (that share a border with this beaver) will know the secret.



Question

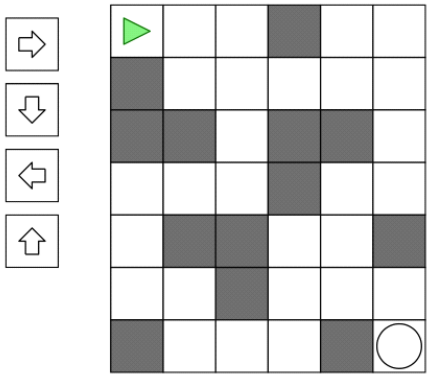
You want all beavers to know your secret tomorrow. But you don't want to spend too much time telling the secret to beavers. What is the minimum number of beavers you need to tell the secret to guarantee that tomorrow every beaver knows your secret?

A) 6 **B)** 8
C) 10 **D)** 12

T4: Placing Arrows

We have a robot that tries to reach a goal (a circle) in a maze. The robot moves straight ahead if possible. If the robot is blocked by a wall (grey cell) in front of it or if reaches the edge of the maze, it turns right.

When the robot arrives on a cell that contains a white arrow, it changes its direction to the direction of the arrow.



Question

What is the minimum number of arrows needed so that the robot reaches the circle?

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

T5: Setting the table

Beaver Bob has set the breakfast-table.

Question

In which order has he placed the objects on the table?

A) table cloth, napkin, cup and saucer, knife, plate
B) table cloth, cup and saucer, napkin, plate, knife
C) table cloth, napkin, cup and saucer, plate, knife
D) napkin, knife, table cloth, cup and saucer, plate

T6: Which suitcases go last?

Three groups of professors are traveling on bus to 3 different destinations. The bus will first stop at the airport, then at the hotel, and finally at the university.

The bus trunk has no partitions and only opens on one side. The bus driver needs to put professors' suitcases into the bus trunk. At each stop, the bus driver likes to be able to take out the suitcases easily.

Question

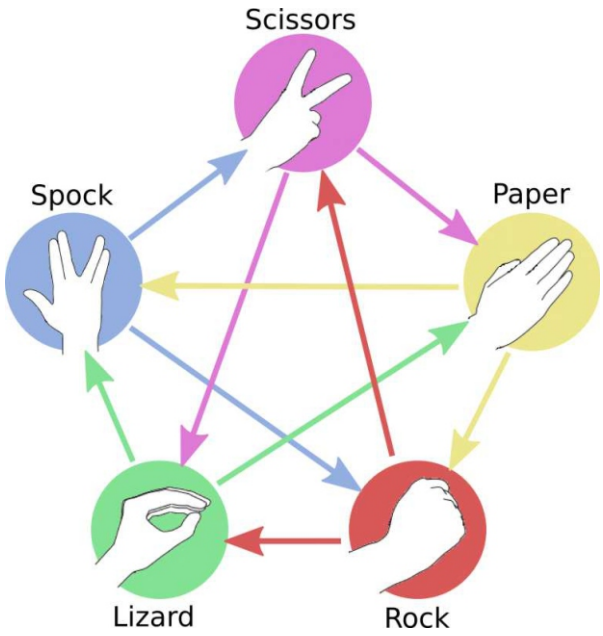
Which group's suitcases should be put into the bus **last**?

A) the professors who will get off the bus at the airport.
B) the professors who will get off the bus at the hotel.
C) the professors who will get off the bus at the university.
D) it does not matter.

T7: Lizard

Rock-Paper-Scissors is a two-player game where both people must chose one weapon between rock, scissors and paper at the same time. The rock beats the scissors (break it), the scissors beats the paper (cuts it) and the paper beats the rock (wraps it). Either one player wins, or the game ends in a draw.

Beavers Sheldon and Rajesh are playing a variant of that game, called Rock-Paper-Scissors-Spock-Lizard, whose rules are summarized by the picture below. An arrow indicates that a weapon beats another. For example, the rock beats the lizard (crushes it). A draw gives 0 point, and a winning hand 1 point.



Beavers Sheldon and Rajesh are playing a 5-round game. Sheldon plays the following sequence: Spock, Lizard, Spock, Rock, Spock and Rajesh plays the following sequence: Spock, Paper, Scissors, Scissors, Scissors.

Question

What is the final score (Sheldon – Rajesh):

A) 4 – 0 **B)** 5 – 0
C) 4 – 1 **D)** 3 – 2

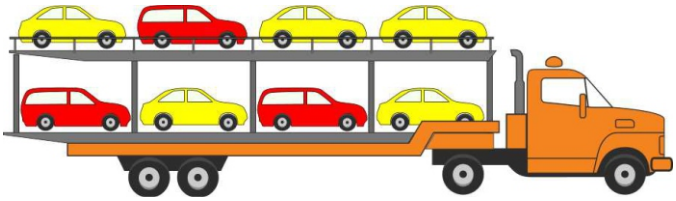
T8: Car transportation

A new red (dark) car comes from a manufacturing line every 7 minutes. A new yellow (light) car comes from another line every 5 minutes. A driver parks the cars in a car transporter in order they leave their manufacturing lines. Top floor of the car transporter is loaded first. Both manufacturing lines start working the same time.

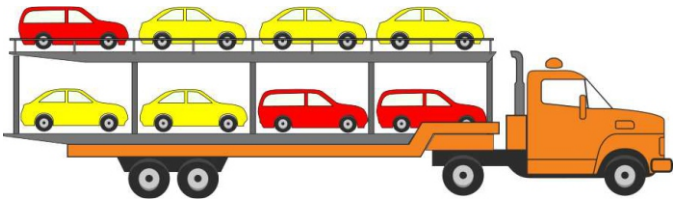
Question

How will the car transporter look after loading?

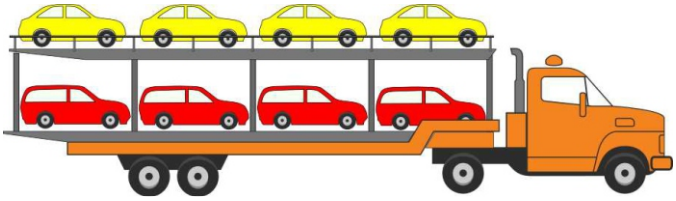
A)



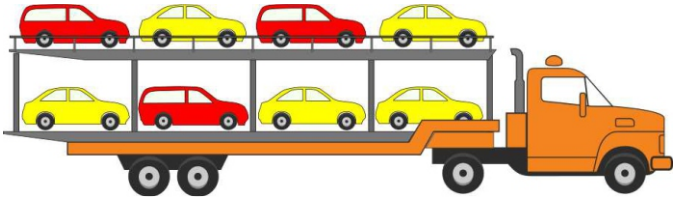
B)



C)



D)

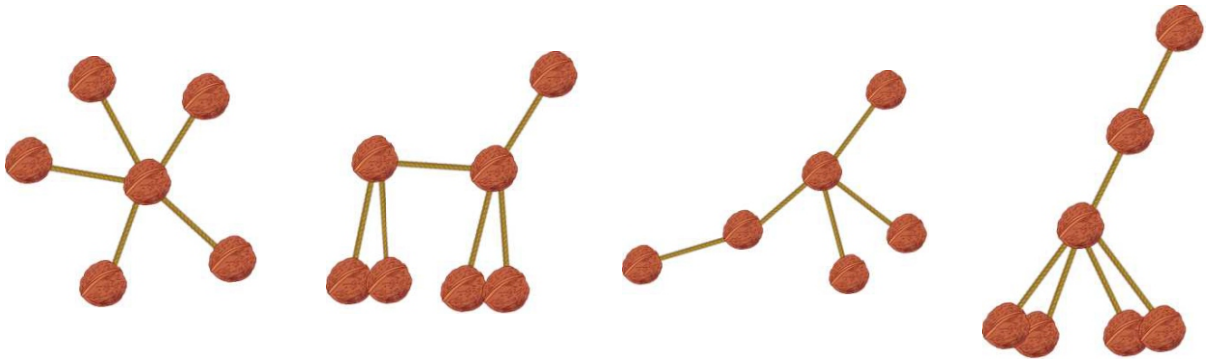


Tasks T9 – T16 carry 4 points each

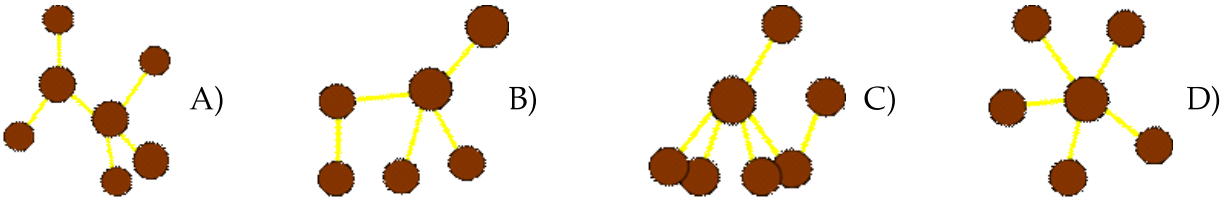
T9: Chestnut animals

Chestnut animals dance wildly. Below you can see four chestnut animals in basic position:

Starfish **Dog** **Sea lion** **Giraffe**



When dancing the animals look like this (they are shown in some random order):

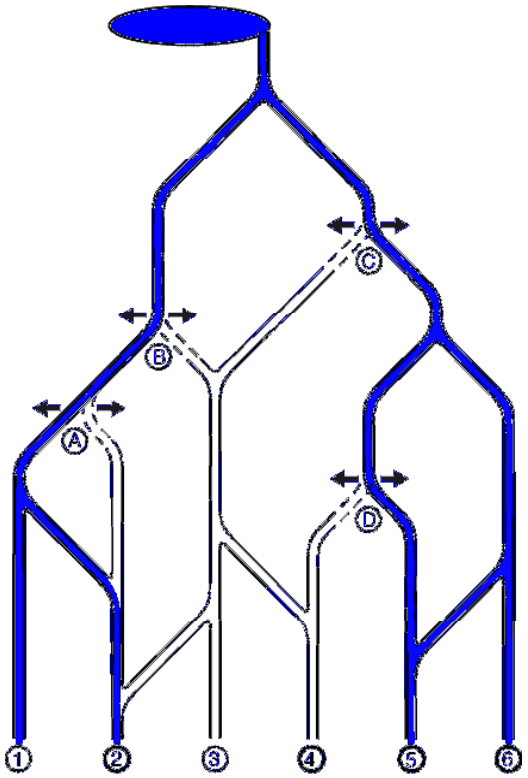


Question

Which is the correct pairing?

A) Starfish - A, Dog - B, Sea lion - C, Giraffe - D
B) Starfish - D, Dog - A, Sea lion - C, Giraffe - B
C) Starfish - D, Dog - A, Sea lion - B, Giraffe - C
D) Starfish - A, Dog - D, Sea lion - B, Giraffe - C

T10: Irrigation system for fields



The beavers have created a nifty irrigation system for their fields. The water flows from a lake at the top of the hill all the way down to the fields 1 to 6 at the bottom.

Along the water canals, the beavers have installed four water gates A to D, where the water can only flow either to left (⬅) or to right (➡).

Question

What is the correct configuration for the water gates to irrigate only fields 2, 4, 5 and 6?

A) A: ⬅ B: ⬅ C: ➡ D: ⬅

B) A: ➡ B: ⬅ C: ⬅ D: ➡

C) A: ➡ B: ⬅ C: ➡ D: ⬅

D) A: ⬅ B: ➡ C: ➡ D: ➡

T11: Time for change

In the country of Bebranada, they have an interesting set of coins in their currency. The coin values are:

- 1 cent
- 7 cents
- 12 cents
- 22 cents

You work in a bank, and a customer comes into the bank. The customer wants to withdraw 20 cents.

Question

What is the fewest number of coins that you can give out in total to the customer?

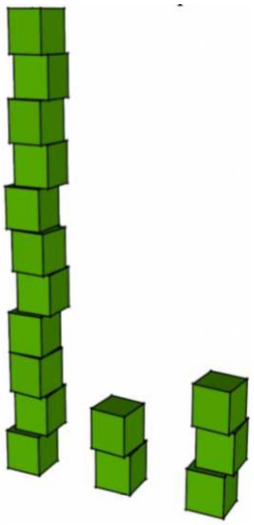
A) 2 **B)** 3
C) 4 **D)** 8

T12: Robot and cubes

A robot performs tasks by doing steps. A robot's step consists of two procedures:

to take a cube from a tower and to put on neighbouring tower.

The robot should equate the number of cubes in towers as much as possible.



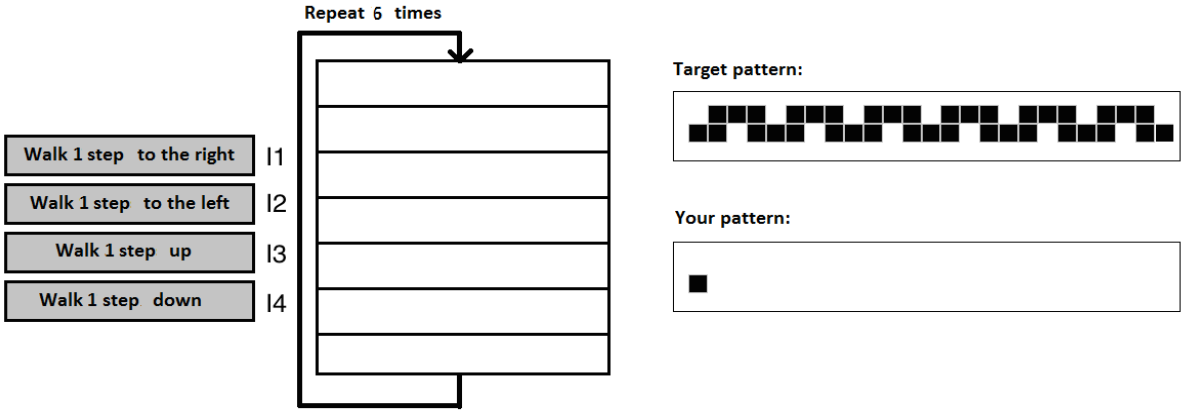
Question

What is the minimum of steps for performing this task?

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

T13: Copy a pattern

In the image below you are shown a target pattern that you can create by repeating six times a sequence of instructions.



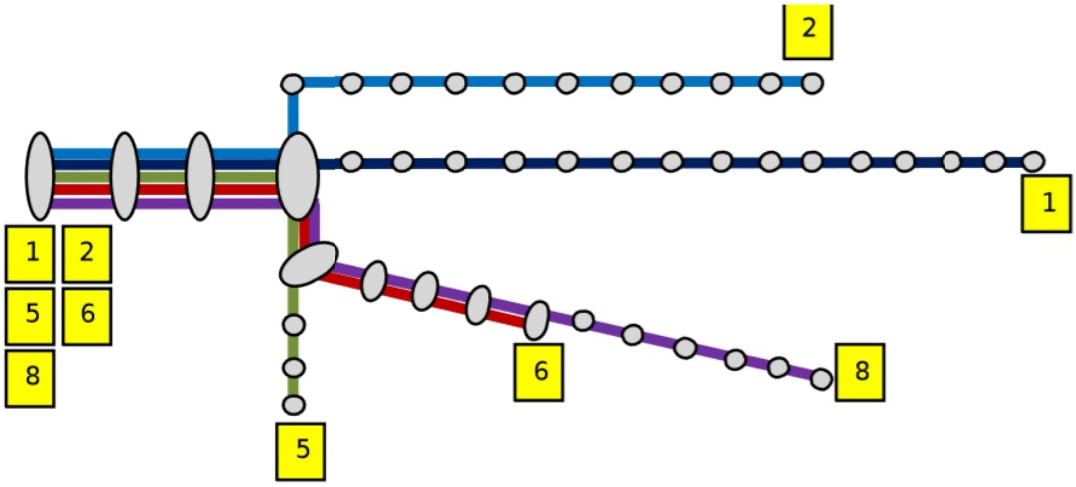
Question

Choose the sequence of instructions that you need to put into the empty boxes in order to draw the target pattern:

A) I1, I1, I3, I1, I4, I1
B) I3, I1, I1, I1, I4, I1
C) I1, I3, I1, I1, I4, I1
D) I1, I1, I4, I2, I3, I1

T14: Tram

One day the trams in Beavercity got going without numbers. Some passangers thought trying to test with the help of the tram-map which tram is going.



After 3th station the tram turned right and at the next station turned too. Then the tram went 4 stations and it arrived to its end station.

Question

Which number had the tram?

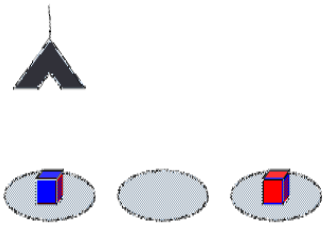
A) 1 **B)** 5
C) 6 **D)** 8

T15: Commands to operate crane

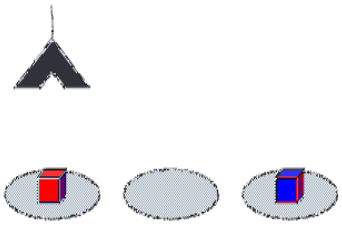
A beaver operates a crane and makes final state from initial state. The crane can catch and transport just one thing at a time. There are six commands to operate this crane:

Down …	moves the crane down close to the corresponding plate
Up …	moves the crane up
Right …	moves crane one position to the right when it is in Up-position
Left …	moves the crane one position to the left when it is in Up-position
Catch …	takes the upmost brick when it is in Down-position
Release …	puts the brick on the plate (eventually on top of the other) when it is in Down-position

initial state



final state



Question

Which is the correct order of commands?

A) Down Catch Up Right Right Down Release Catch Up Left Left Down Release Up

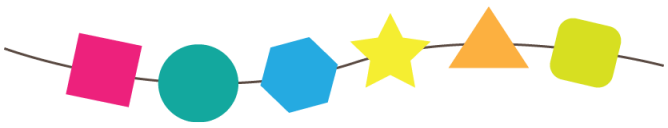
B) Right Right Down Catch Up Left Left Down Release Catch Up Right Right Down Release Up

C) Down Catch Up Right Down Release Up Right Down Catch Up Left Left Down Release Up Right Down Catch Up Right Down Release Up Left Left

D) Down Catch Up Right Down Release Up Right Down Catch Up Left Down Release Up

T16: Broken bracelet

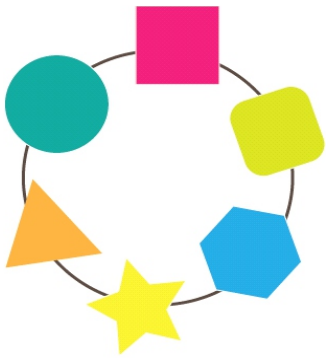
Emily the Beaver has a favorite bracelet made out of colorful beads with different shapes. One day, her bracelet breaks. The broken bracelet looks like this:



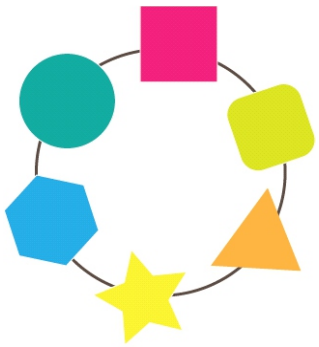
Question

Your task is to help Emily find a new bracelet. Which one of these bracelets could have been the same as Emily's?

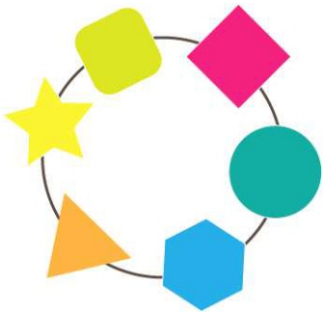
A)



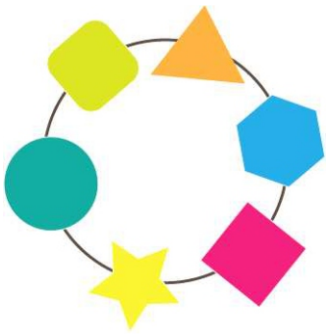
B)



C)



D)

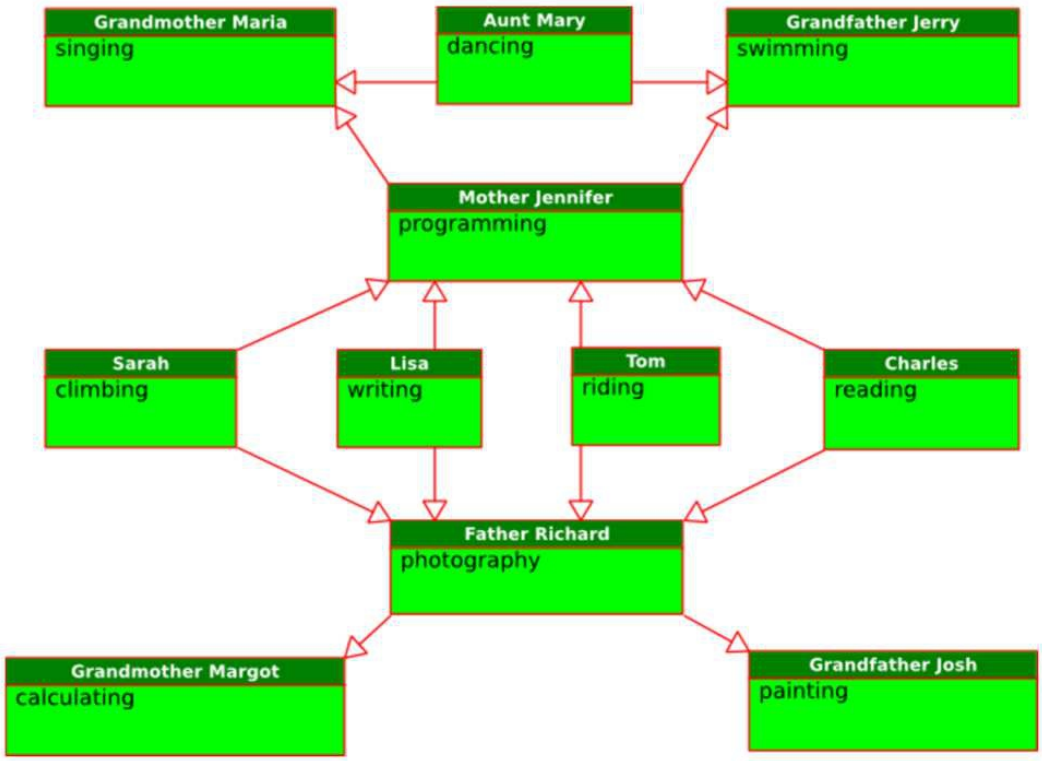


Tasks T17 – T24 carry 5 points each

T17: Super Power Family

In a beaver family all family members have abilities. A daughter inherits all abilities from her mother; a son inherits all abilities from his father. In addition to the inherited abilities, each family member also has one additional ability. The diagram below shows the relationships between the beavers. It also shows for each beaver the additional ability.

In the picture you can see that Mother Jennifer has inherited the ability to sing from Grandmother Maria, and in addition to that she has the ability to program. Lisa inherits from her mother both these abilities, and adds the ability of writing. So she has the ability to write, program and sing.



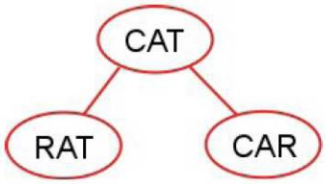
Question

Which statement is correct?

A) Sarah has abilities in reading, programming and singing.
B) Tom inherits from Grandmother Margot the ability to calculate.
C) Aunt Mary has abilities in dancing and swimming.
D) Tom's abilities are riding, painting and photography.

T18: Word chains

Thomas plays with words. He connects two words, if they differ in **exactly one** letter. At first, he had three words, he connected them as follows:

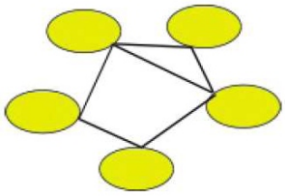


Then he added two more words:

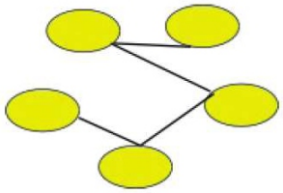
Question

Which of the following shows the correct connections after adding the two words?

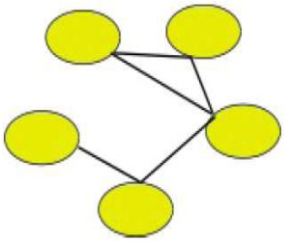
A)



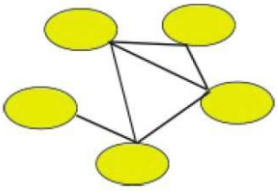
B)



C)



D)



T19: Competition

Beavers and dogs had a competition. The nine participants scored the following points: 1, 2, 2, 3, 4, 5, 5, 6, 7.

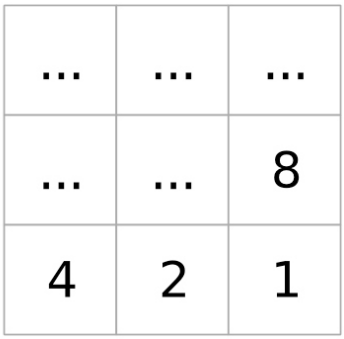
We know that no dog scored more than any beaver, but one dog tied with a beaver and two dogs also had a tie.

Question

How many dogs took part in the competition?

A) 2 **B)** 3
C) 6 **D)** 7

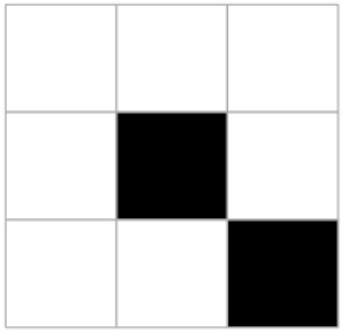
T20: Encode numbers



The beavers want to encode numbers. Therefore they developed the Quick-Beaver-Code (QB-Code). This is a graphical code consisting of 3x3 squares. Every square has a certain value. The squares are filled line by line from the bottom to the top, from right to left. The next square has double the value of the square before. In the example, you see the values of the first four squares.

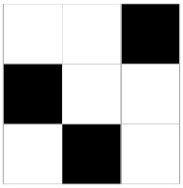
To encode a number the beavers darken some squares. The number encoded is the sum of the values of the dark squares.

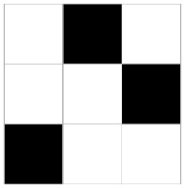
For example, the number encoded in this QB-Code is 17:

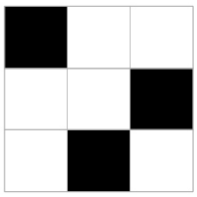


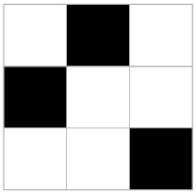
Question

Which of the following rotations of the QB-Code below results in the highest possible number encoded?

A) 

B) 

C) 

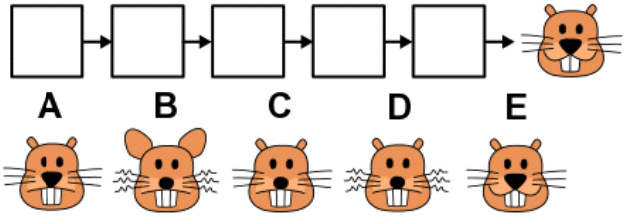
D) 

T21: Animation

B-taro is planning an animation, which shows a sequence of pictures of a face.

The animation should run smoothly. Therefore, the order of the pictures is correct, if only one attribute of the face changes from one picture to the next.

Unfortunately, the pictures got mixed up. Now B-taro must find the correct order again. Luckily, he knows which picture is last. He labels the five other pictures with letters A to E.



Question

What is the correct order of the five other pictures?

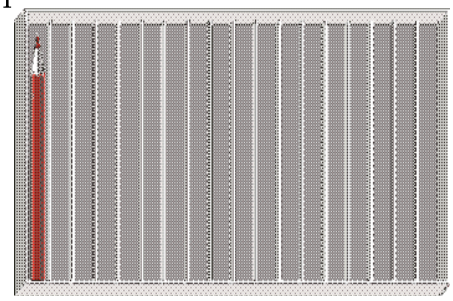
A) D → B → E → C → A **B)** C → B → D → A → E
C) D → B → C → E → A **D)** B → D → C → A → E

T22: Pencils' alignment

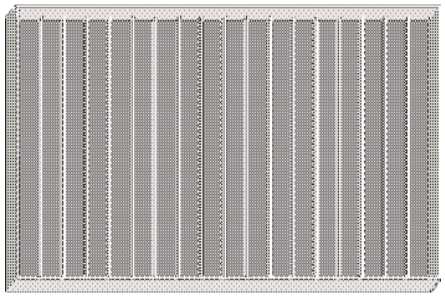
A little beaver is bored of drawing and wants to play with a box of pencils.

- Pencils are taken from the box one by one from left to right.
- Pencils are placed in Mom's and Dad's boxes, also from left to right.
- The first pencil is placed in Mom's box.
- Each other pencil is compared with the last pencil placed in Mom's box. If it is not longer than the last pencil placed in Mom's box, then it is also placed in Mom's box. Otherwise, it is placed to Dad's box.

Mom's box after first pencil is placed



Dad's box after first pencil is placed



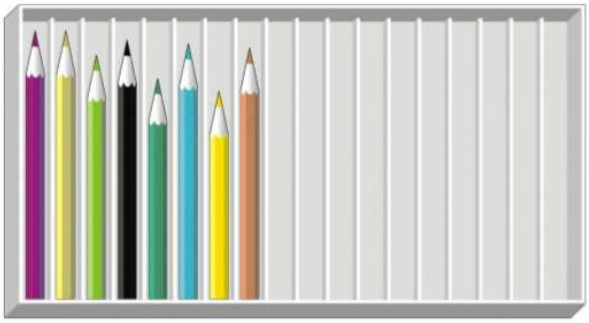
Question

What will Dad's box look like after the little beaver places the last pencil?

A)

B)

C)

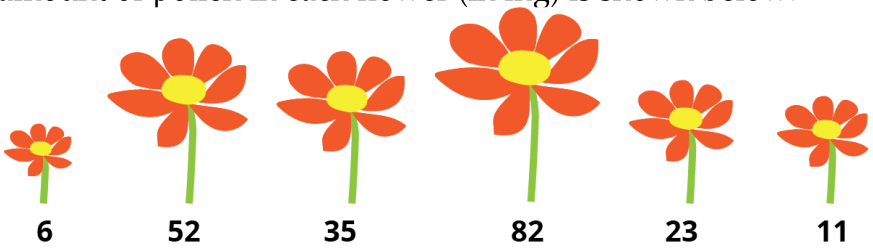


D)

T23: A field of flowers

Beever flies to a field of flowers to collect pollen. On each flight, he visits only one flower and can collect up to 10mg of pollen. He might return to the same flower more than once.

The initial amount of pollen in each flower (in mg) is shown below.



Question

What is the maximum total amount of pollen that Beever can collect in 20 flights?

A) 192 mg **B)** 196 mg
C) 197 mg **D)** 199 mg

T24: Bob the Beaver

Bob the Beaver is a young dam builder. He usually uses his own material and keeps a detailed list of the material he bought and used. On a day when Bob lacks some material, he borrows it from his neighbours.

Purchases		Used material	
Mon 15. 10. 2015	20 m of rope	Wed 17. 10. 2015	30 m of rope
Mon 15. 10. 2015	12 logs	Wed 17. 10. 2015	10 logs
Tue 16. 10. 2015	20 m of rope	Thu 18. 10. 2015	20 m of rope
Thu 18. 10. 2015	100 nails	Fri 19. 10. 2015	50 nails
Fri 19. 10. 2015	50 m of rope	Sat 20. 10. 2015	3 logs
Fri 19. 10. 2015	5 logs	Sun 21. 10. 2015	30 m of rope
Sat 20. 10. 2015	20 m of rope	Sun 21. 10. 2015	3 logs

Question

It is known that Bob went to the shop on the 15. 10 because he had no material left at home at all. Which of the following sentences is correct?

A) Bob borrowed the neighbour's rope on Wednesday.
B) Bob borrowed the neighbour's rope on Thursday.
C) Bob borrowed the neighbour's rope on Sunday.
D) Bob did not borrow the neighbour's rope.