











Tasks T1 – T7 carry 3 points each

T1. Sensitive data

Tigran has four boxes to store his personal information. Each box can be locked  to keep information secret or unlocked  to share it openly.

















-  **Box 1:** Name – “Tigran”
-  **Box 2:** Favorite Color – “Blue”
-  **Box 3:** Secret Password – “Tigran123”
-  **Box 4:** Age – “10 years”

His friends give him some helpful advice:



-  Sophie: “Always keep your password locked away!”
-  Phillipe: “Your age is not sensitive personal information. You can keep this locked or unlocked.”
-  David: “Your favorite color isn't sensitive; keep it unlocked.”
-  Nare: “Your name must be unlocked, your friends already know this.”

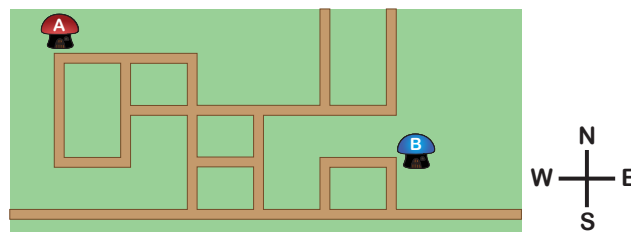
Question / Challenge

Which boxes should Tigran lock or unlock based on his friends' advice?

	Box 1	Box 2	Box 3	Box 4
A)	 locked	 locked	 unlocked	 unlocked
B)	 unlocked	 unlocked	 locked	 locked
C)	 locked	 unlocked	 locked	 unlocked
D)	 unlocked	 locked	 unlocked	 unlocked

T2. A wrong step

Aira is walking from her house  to her friend Bo's house  for the first time. The streets between their houses are shown.



Bo gave her the following instructions, where walking 1 block means walking straight until you reach the next street.




- Step 1: Walk 2 blocks east (E).
- Step 2: Walk 3 blocks south (S).
- Step 3: Walk 3 blocks east (E).
- Step 4: Walk 1 block north (N).

T4. Wristwatches

River Beaver Ltd. manufactures wristwatches for the expanding population of Bebras City.

Their watches come in circular , square , or octagonal  shapes.

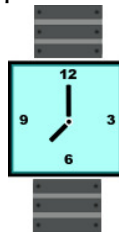
They feature metal , silicone , or leather  bands.

They produce digital , analog , and combined digital/analog watches .

Notably, metal bands are not used on their circular watches, and all digital watches utilize silicone bands. The image provides examples of their products.



Digital circular watch with silicone band



Analog square watch with metal band



Octagonal combined watch with leather band

Question / Challenge

One of the wristwatches is not a product of the River Beaver Company. Which one?








T5. Identifying Flowers

A smart robot wants to distinguish between five types of flowers, but it doesn't know their names!

Instead, it uses important features to identify each flower:

- Number of petals
- Flower color
- Leaf size
- Fragrance
- Stem shape

The robot has information about four flowers:

	Petals	Leaf	Colour	Fragrance	Stem shape
					
Tulip	Six	Long & Smooth	Red/Yellow	Mild	Smooth
Rose	Ten to Twenty	Small & Sharp	Red/ Pink	Strong	Thorny

Daisy	Ten to Twenty	Medium size	White/Yellow	Mild	Thin
Camellia	Ten to Twenty	Medium size	Pink	Mild	Thick
Marigold	More than 20	Large and Round	Yellow/Orange	Strong	Smooth, Thin

Question / Challenge

The robot sees a new flower with the following characteristics:

?	Twelve	Medium size	Yellow	Mild	Thin

Which flower type does this flower belong to?

- A) Tulip B) Rose C) Daisy D) Marigold

T6. Secret message

Gladiator of the Roman Empire wants to send a secret message. They encrypt their message by using the rule explained in the table:

Message	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
Encrypted	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c

For example, the message “Ave Cesar” would encrypt as “Dyh FhvdU”.

Question / Challenge

Gladiator sent this secret message: “L dp lq wkh pdunhw”.



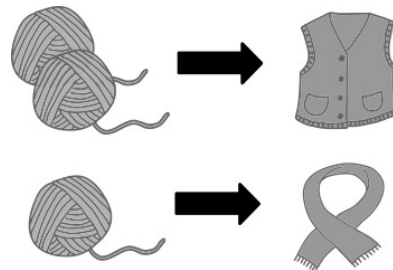
What does it mean?

- A) “I am in the market” B) “I go to the market”
 C) “I am in the prison” D) The message does not make sense.

T7. Knitting

Beaver Jessica wants to make vests and scarves:

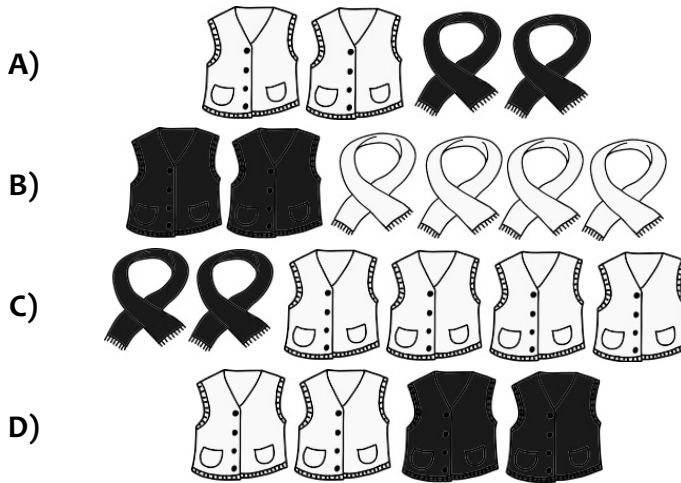
- 2 yarn balls are needed for 1 vest.
- 1 yarn ball is needed for 1 scarf.



Question / Challenge

Which option shows a combination of vests and scarves that Jessica can make using 2 black yarn balls and 4 white yarn balls?





Question / Challenge

Which one of the following instruction sequences has the pirate received?

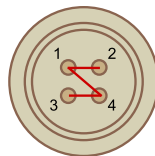
- A) S, S, E, E B) E, E, S, S C) E, S, S, E D) S, E, E, S

Tasks T8 – T14 carry 4 points each

T8. Sewing buttons

A robotic sewing machine is used to sew buttons on a shirt. The machine will sew the button according to the received sequence of numbers.

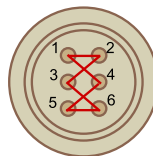
For example, if the machine receives the sequence 2143, it will sew the button as you can see in the picture:



The machine starts at the first number (number “2” in the example) and moves the thread to each subsequent number, continuing until all numbers in the sequence are followed.

Question / Challenge

Which sequence corresponds to a button sewn like this?

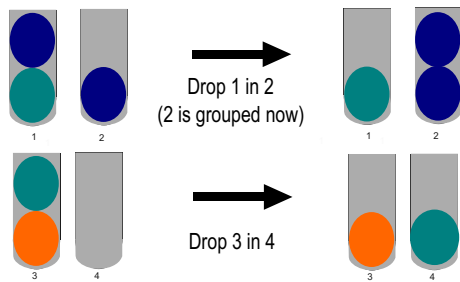


- A) 3421653 B) 1236541 C) 241635 D) 41243653

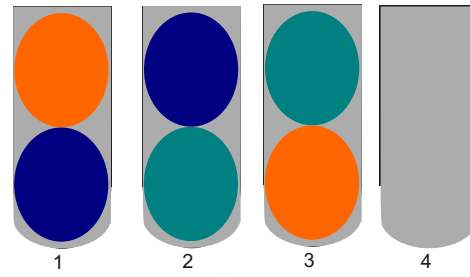
T9. Gumball shop

Bob has bought 4 containers of 2 gumballs each. He ate the two gumballs from the fourth container, and now it is empty. The first three containers remain intact. The gumballs come in 3 colors. Bob wants to group the gumballs by the same color. He can only use a move called **drop** to move the gumball at the top of the container to another container. Each container can only hold a maximum of two gumballs.

Here are two examples of a drop



Bob's gumballs that need to be grouped



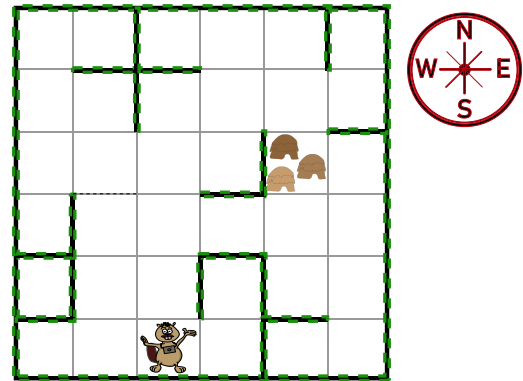
Question / Challenge

Which of the following moves combination is valid so that Bob can group the gumballs in the containers by the same color?

- A) Drop 1 in 4, Drop 3 in 1, Drop 3 in 4, Drop 2 in 3
- B) Drop 2 in 4, Drop 3 in 2, Drop 1 in 3, Drop 1 in 4
- C) Drop 3 in 4, Drop 2 in 4, Drop 1 in 3, Drop 1 in 2
- D) Drop 2 in 4, Drop 1 in 2, Drop 3 in 1, Drop 1 in 4?

T10. Visit San Village

Beaver Joel wants to visit a nearby village and needs directions. He sees a sign but cannot understand the symbol language. The indications can only be North, South, East and West and each symbol stands for moving one square in a specific direction. Thick lines along the way are walls that cannot be crossed!



Question / Challenge

Which instructions will lead Beaver Joel to the village?

- A) ◎ ▲ ▲
- B) ▲ □ ◎ ◎ ◎
- C) ▲ ▲ ▲ ▲ ▲
- D) ▲ ▲ ◎ ◎ ▲

T11. Building instructions!

You have the following blocks:

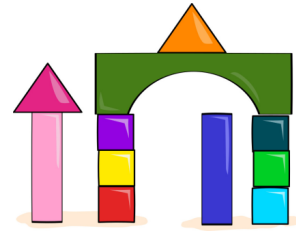
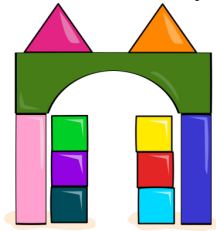
6 cubes	1 bridge	2 pyramids	2 cuboids

Your friend gives you the following building instructions.

1. Take 3 cubes.
2. Place them on top of each other to form a tower.
3. Form a separate tower with the 3 remaining cubes.

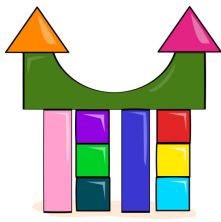
4. Place the 2 cuboids next to the cube towers.
5. Place the bridge on top of your structure.
6. Take the 2 pyramids and place them on top of your structure.

These instructions allow you to build many different structures. Here are two examples:

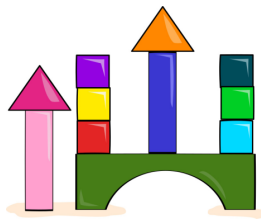


Question / Challenge

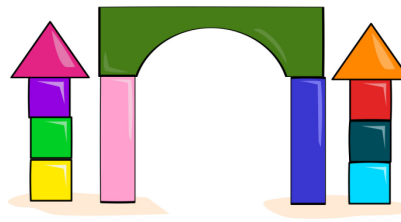
Which of the following structures **CANNOT** be built by following the instructions?



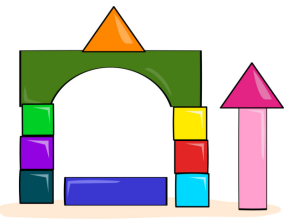
A)



B)



C)



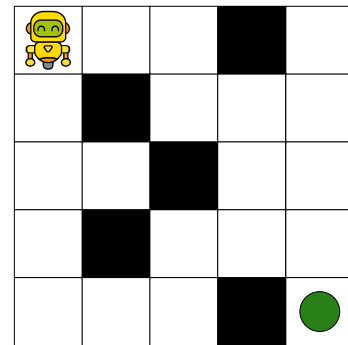
D)

T12. Robot path

The robot moves within a 5x5 grid, starting in the top left corner. It must reach the goal in the fewest possible moves.

Rules:

- The robot can move in three directions:
 - Down (↓)
 - Right (→)
 - Left (←)
- Diagonal movement (↖ ↗ ↘ ↙) is not allowed.
- The robot must avoid black squares.



Question / Challenge

What is the minimum number of moves, so that the robot reaches the green goal?

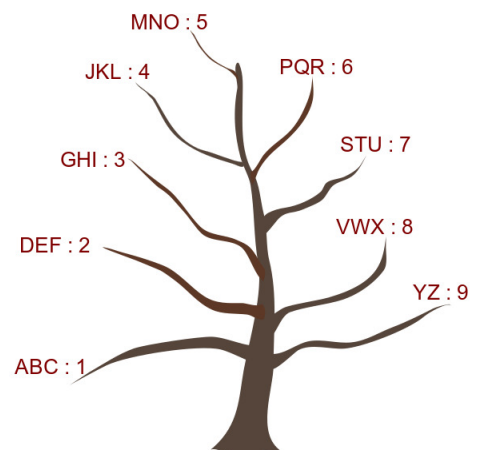
- A) 5 B) 6 C) 8 D) 9

T13. Encoding Tree

A tree has clusters of two or three letters positioned at the ends of its numbered branches, beginning with 1 on the left.

Messages can be encoded in the following manner:
Each letter of the message is encoded based on two key numbers:

- The **first number** represents the branch number where the letter is located.
- The **second number** indicates the position of the encoded letter within its respective group.



For instance, the message “CAR” is encoded as 13-11-63.

Question / Challenge

What is the encoded message for “SYRIA”?

- A) 81-91-63-33-11 B) 72-91-63-33-11 C) 71-91-63-33-21 D) 71-91-63-33-11

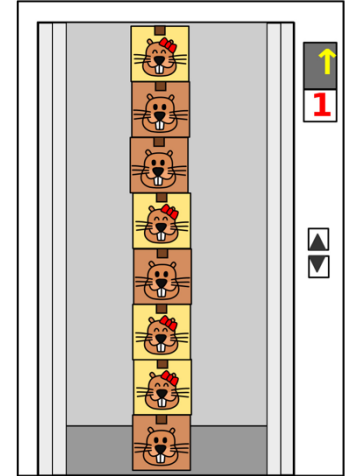
T14. Elevator

Bitaro () lives on the **2nd floor**, and Bibako () lives on the **3rd floor** of an apartment building.

The movers accidentally mixed up their boxes. They stacked **all the boxes in the elevator**, one on top of another. The elevator is now on the **1st floor** as shown in the image.

Each box has the owner's face on it. The elevator can move to any floor and stop there. Beavers can only pick up **their own boxes**, and **only from the top** of the stack. If the box on top belongs to the other beaver, the elevator must move to their floor first.

The elevator starts at the 1st floor.



Question / Challenge

How many times does the elevator stop at a floor to let Bitaro and Bibako take their boxes?

- A) 2 B) 6 C) 8 D) 9

Tasks T15 – T21 carry 5 points each

T15. Beaverbrook Forest

Deep in Beaverbrook Forest, Liam and Maya stumbled upon an old fallen tree with strange carvings of rocks and sticks arranged in a puzzling sequence.



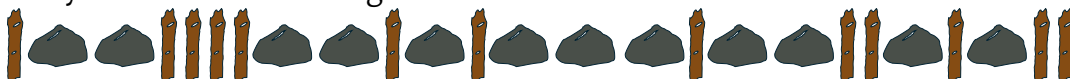
Just beneath it, partially covered in moss, they discovered a flat stone, also with carvings of rocks and sticks, but this time paired with letters of the alphabet. “This must be an encoding key to the message on the tree!” Maya exclaimed.

The letters and carvings on the flat stone:

A		I		T	
E		M		L	
F		N		O	
H		S		P	

Question / Challenge

Can you decode the message on the tree?



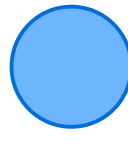
- A) STAPLE B) PETALS C) PLANTS D) SAMPLE

T16. Beaver language

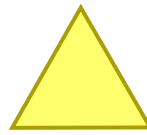
In Beaver language the names of these three shapes are:



mer



ogg



epp

All ways a second shape can be behind or below a first shape are defined in the first four images below, using endings “x” and “z”. A third shape can be arranged relative to the second shape using the same definition, as shown in the fifth image.

ogg merx



mer oggx



ogg merz



mer oggz

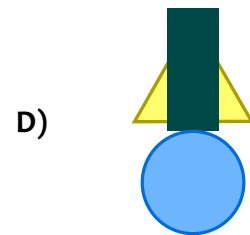
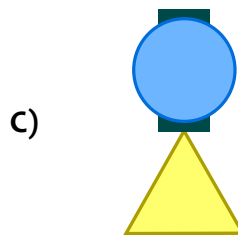
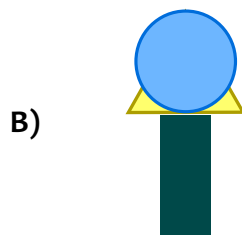
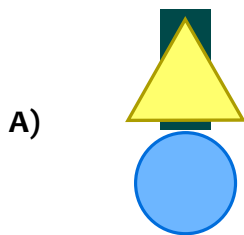


epp oggx merz



Question / Challenge

Which of the following shape arrangements can be described by mer eppx oggz?



T17. Hotel Deal

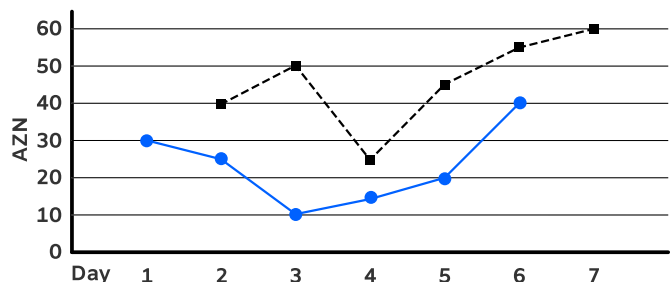
For their summer holiday, a beaver will fly with an airline that has a special offer. Each day of the week has a different cost for booking a flight out and a return flight.

Here are the rules for the special offer:

- The beaver can only book one flight out and one return flight.
- Each flight ends on the same day it starts. (The beaver is never in the air at midnight.)
- The holiday must last at least one night so it cannot end on Day 1 or start on Day 7.

Here is the price list:

Day	Flight out Price (●)	Return Price (■)
Day 1	30 AZN	-
Day 2	25 AZN	40 AZN
Day 3	10 AZN	50 AZN
Day 4	15 AZN	25 AZN
Day 5	20 AZN	45 AZN
Day 6	40 AZN	55 AZN
Day 7	-	60 AZN



The total cost of the flights is the sum of the cost of the flight out and the cost of the return flight.

For example, if the beaver's holiday lasts two nights because it flies out on Day 2 (25 AZN) and returns on Day 4 (25 AZN), the total cost is 50 AZN.

Question / Challenge


The beaver does not spend more than 80 AZN. What is the maximum possible number of nights its holiday can last?

- A) 2 B) 4 C) 5 D) 6

T18. Fabulous Machine

The Beavers have a fabulous machine.

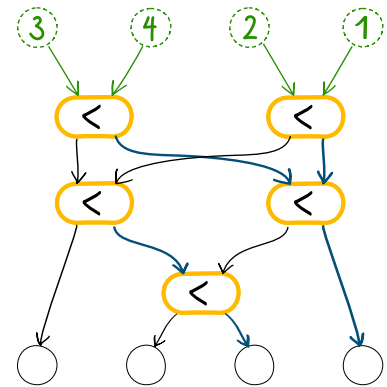
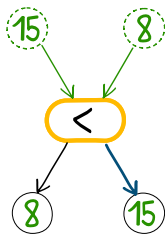
Four numbers are put on the input spots at the top, like 3, 4, 2, and 1, for instance.

Along arrows and switches , the numbers make their way through the machine, up to the output spots at the bottom.

Each of the five switches compares two incoming numbers and routes ...

- ... the smaller number to the left and
- ... the larger number to the right.

Here is an example:



Question / Challenge

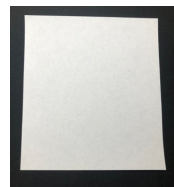
What task does the fabulous machine perform?

- A) Sort the numbers in ascending order! Result: 1, 2, 3, 4
 B) Output the numbers in reverse order! Result: 1, 2, 4, 3
 C) Sort the numbers in descending order! Result: 4, 3, 2, 1
 D) Output the numbers in the same order! Result: 3, 4, 2, 1

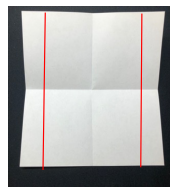
T19. Origami Traces

Beaver made a megaphone origami piece. It is folded following a specific set of steps.

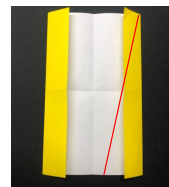
Megaphone



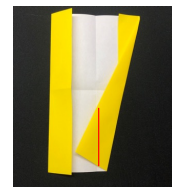
1. Fold it in half vertically and horizontally to create creases, then unfold it.



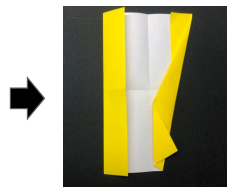
2. Fold along the red lines.



3. Fold along the red line.



4. Fold along the red line.



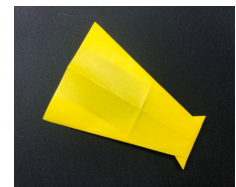
5. Fold it the same way as in steps 3 and 4.



6. Fold along the red line.



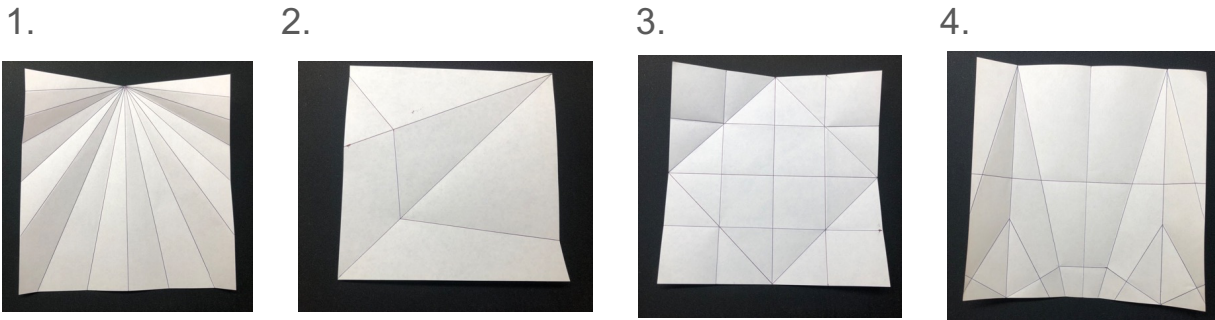
7. Flip it over.



8. Finished

Question / Challenge

After creating the megaphone, Beaver unfolded the paper, revealing one of the following crease patterns labeled 1, 2, 3, and 4.



Which crease pattern corresponds to the megaphone origami piece?

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

T20. Color Change

Nuryn has a large collection of tiles. There are six types of tile, numbered 1 to 6. She put 16 of the tiles in a row so that all tiles of the same type are grouped together.



Now Nuryn wants to have fewer types of tile, but the row must stay the same length. She can change some of the tiles to another type, but each type she keeps must still be grouped together.

Question / Challenge

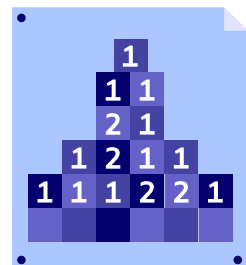
She wants to end up with only 3 types by changing the smallest number of tiles possible. How many tiles does she need to change?

- A) 10 B) 9 C) 5 D) 4

T21. Secret Code

Albert the forgetful inventor has produced a poster to help him remember the code for his safe where he keeps the plans for his inventions. In order for Albert to remember the code, he reads aloud from left to right, and counts how many of each number is in each row and fills the next rows, considering each time the longest run of digits.

So, Albert sees, counts and says aloud the digits that appear on the first row, “One 1”, this gives Albert the code for the second row which is “11”. Then he reads the run of ones, as “Two ones”.



The last number in the sequence is the code to unlock the safe.

Question / Challenge

What is the six-digit code that Albert must enter to unlock the safe?

- A) 312211 B) 112211 C) 111222 D) 111321

END