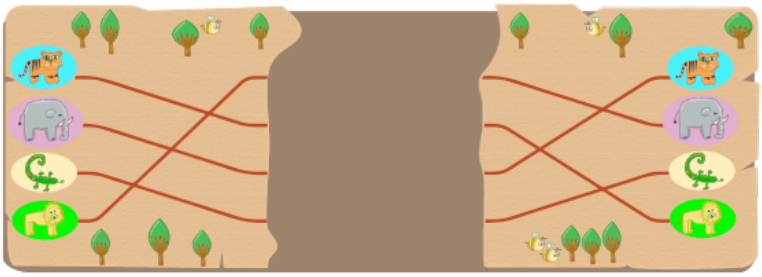
Tasks T1 – T7 carry 3 points each

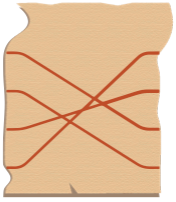
T1. Map it Out

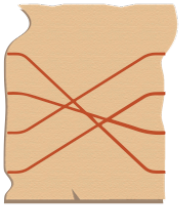
Four animals set out on a journey. A map showing their journey was created, showing for each animal, a line going from its initial location to its final location. However, the middle section of the map went missing.

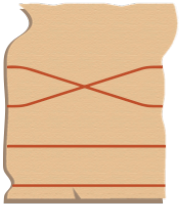


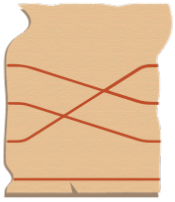
Question / Challenge

Which of these could be the missing portion of the map?

A) 

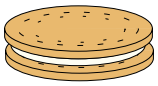
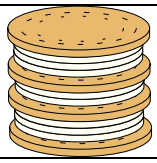
B) 

C) 

D) 

T2. Beaver's pattern

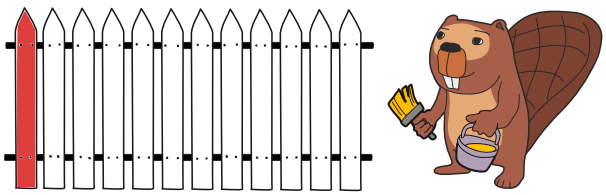
Beaver Baxter's favorite snack is a cookie. It consists of a biscuit, a filling, and another biscuit. Baxter likes to take apart the cookies and make his own version.

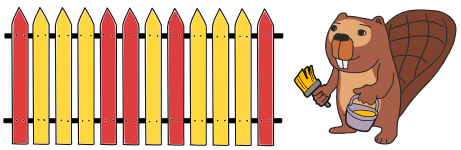
Normal cookie	Baxter's version
	

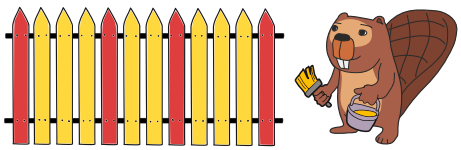
Question / Challenge

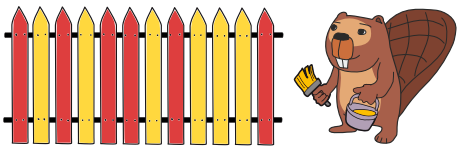
Now Baxter wants to paint his fence in the same pattern as his version of cookie. He wants to use his favorite colors, red and yellow.

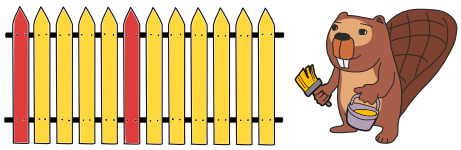
Baxter has already painted the first plank. What will the rest of the fence look like?



A) 

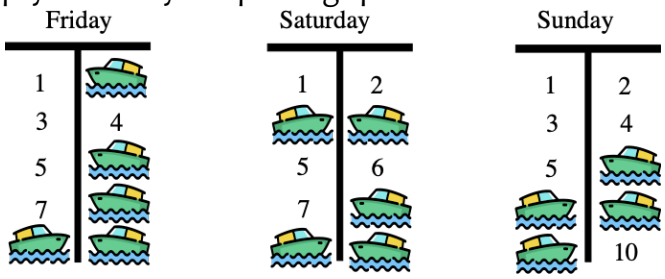
C) 

B) 

D) 

T3. Free Parking Spaces

Each of ten parking spaces at a marina are either reserved or empty as shown. For example, parking space 1 is empty on Friday but parking space 2 is reserved on Friday.



Tom needs to choose to arrive on Friday or Saturday. He also needs to choose a parking space that he can reserve for two days in a row. For example, one option is for him to arrive on Saturday and to reserve parking space 1.

Question / Challenge

How many options does Tom have?

A) 4 **B)** 5 **C)** 6 **D)** 8

T4. Online Class

Teacher Ava conducts an online class from her home.
On her computer screen, Ava can see that there are 9 students who have joined her class: Emma, Maya, Bella, Lee, Raul, Hannah, Diana, Alice, and James.
Each of the 9 students is using a different computer in the school library.

Because the students are sitting next to each other in the library, Ava can also see on her screen who each student is sitting next to.
Therefore she knows that all the students are sitting side by side in the library.

Question / Challenge

Which of the 9 students is sitting in the middle (5th position)?

A) Diana **B)** Raul **C)** Bella **D)** Hannah

T5. Colorful balloons

Ana has four friends: Laura, Diego, María and Sofía.
She wants:

- For each friend to have a balloon of a different colour.
- For the balloon they have to be a different colour than their shirt and hat.

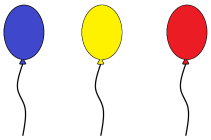
Maria already has the green balloon.

María

Laura

Diego

Sofía



Question / Challenge

Which colour will have Laura's ballon?

A) Blue **B)** Green **C)** Red **D)** Yellow

T6. Saving Beavercoins

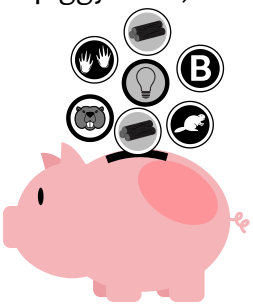
There are three types of Beavercoins in Beaverland.
The following images show the Beavercoins from both sides.

Type 1

Type 2

Type 3

Ana keeps her seven Beavercoins in a piggy bank, as shown below.



Question / Challenge

Which of these are Ana's Beavercoins?

A)

B)

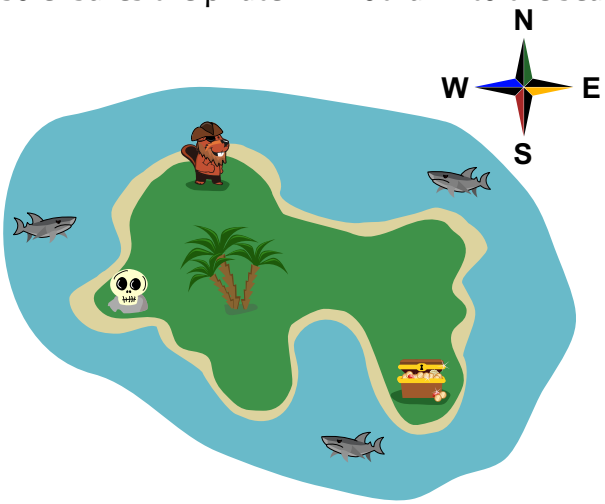
C)

D)

T7. The pirate and the treasure

A treasure chest is buried somewhere on the Treasure island. A pirate received an instruction sequence to reach the treasure chest. The instruction sequence contains 4 steps, where

each step is to move exactly one mile either in the South (S) or the East (E) direction. The instruction sequence also ensures the pirate will not fall into the sea that is full of sharks.



Question / Challenge

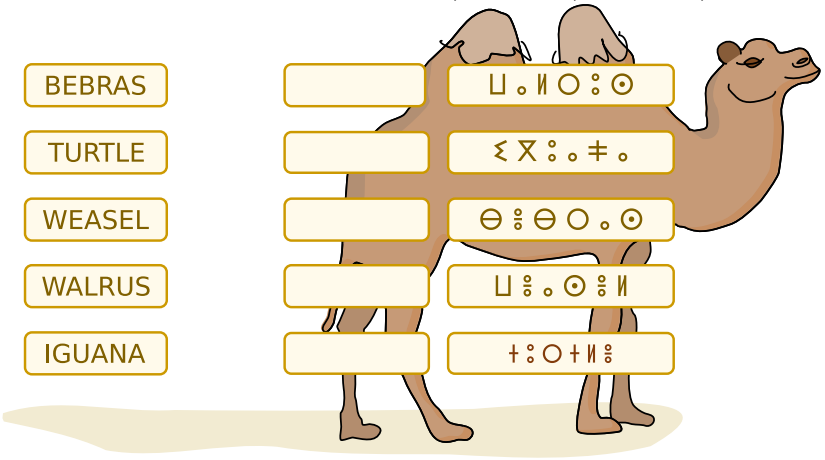
Which one of the following instruction sequences has the pirate received?

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. Tifinagh

Tim knows the Tifinagh alphabet, which is used by some Tuareg Berber, who are living in northern Africa. Tim uses the Tifinagh alphabet as code. Tim maps the same Tifinagh symbol to the same letter. Tim codes five words: BEBRAS, TURTLE, WEASEL, WALRUS, and IGUANA.



Question / Challenge

Which is the Tifinagh-code for BEBRAS?

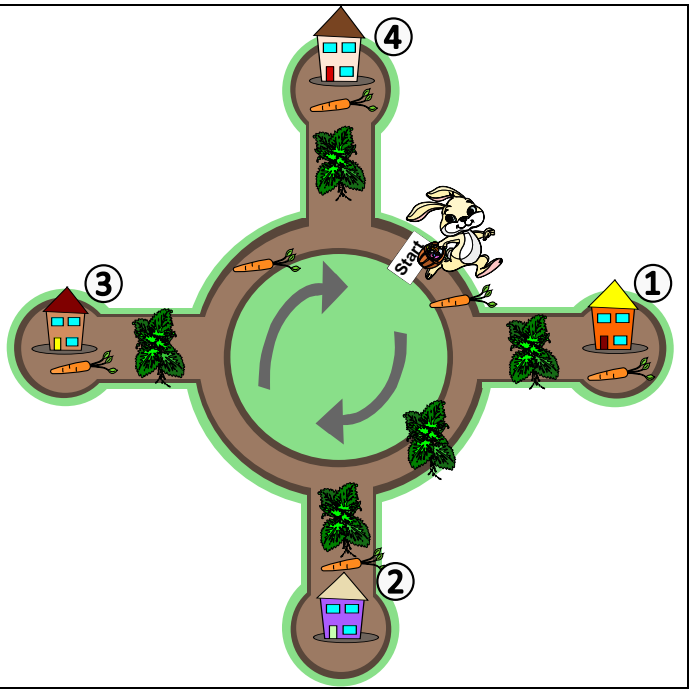
A) ⵍ ⴰ ⵎ ⵔ ⵙ **C)** ⵣ ⵔ ⵣ ⴰ ⵙ

B) ⵜ ⵓ ⵔ ⴰ ⵜ **D)** ⵍ ⵔ ⴰ ⵔ ⵎ

T9. Egg delivery

The Easter Bunny wants to deliver Easter eggs to all four houses in the village. Unfortunately, stinging nettle patches block some of the paths. The Bunny follows these rules:

- Move clockwise around the circular path.
- When passing each house, deliver to it if it is not blocked by nettles, then proceed to the next house.
- Eat each carrot that can be reached. Use the energy gained from the carrot to remove the next nettle patch.
- Begin at the point "Start".



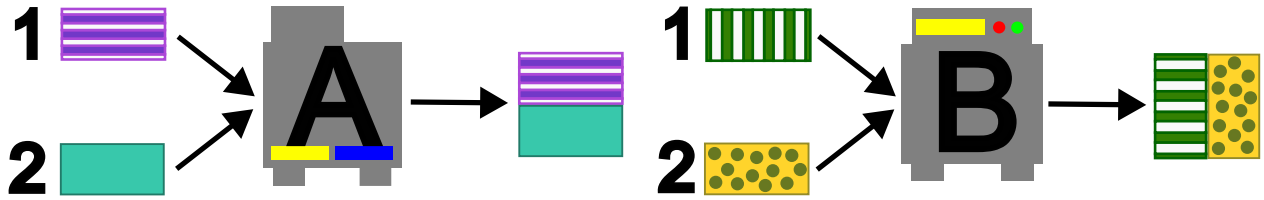
Question / Challenge

Which house will get its delivery last?

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

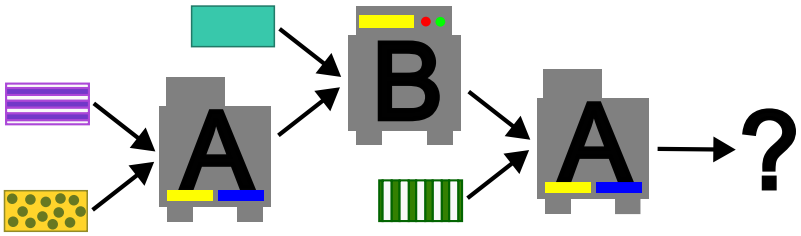
T10. Shape factory

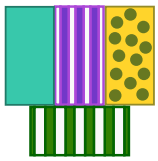
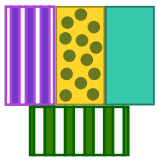
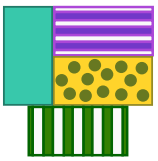
There are two machines, A and B, that make new shapes. Machine A makes a new shape made of shape 1 on top of shape 2. Machine B makes a new shape by turning them and putting shape 1 to the left of shape 2.



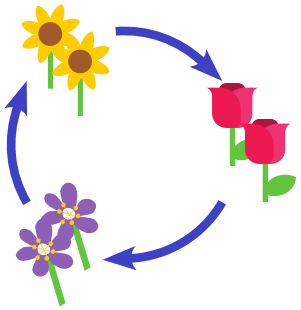
Question / Challenge

Machines are combined as shown. Which is the final shape made by the combined machines?



A)  **B)**  **C)**  **D)** 

T11. Magic Garden



In the Magic Garden, a wonderful transformation occurs every night. Each flower can change its color based on a magical rule: If a flower is next to at least one flower of the same type, it will transform into the next type in the magical sequence. The sequence of transformation is:
Sunflower (yellow) → Rose (red) → Violet (purple) → Sunflower (yellow).
On first day, the garden had a row of flowers in this order:
Sunflower, Sunflower, Rose, Violet, Rose.

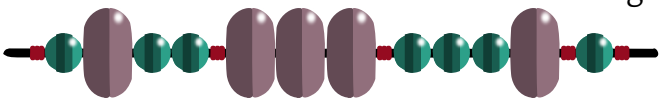
Question / Challenge

In the morning of Day 5, the Magic Garden had a remarkable transformation, with one type of flower covering the entire garden. Which flower has prevailed and filled the garden with its color?

A) Sunflower  **B)** Rose  **C)** Violet  **D)** Tulip 

T12. Bracelet with a Message

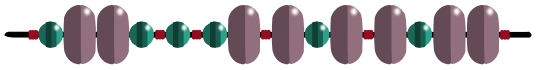
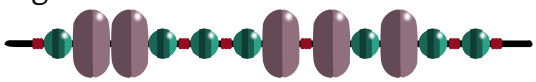
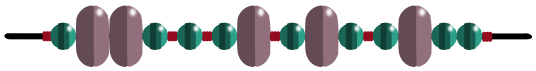
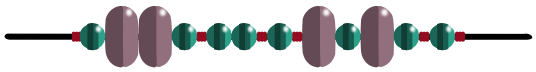
When using  as "•" and  as "-" in the morse code table to the right and  as a separator, you can create a bracelet like this one which contains the message "LOVE".



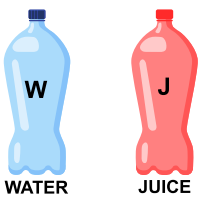
A	•-	J	•---	S	•••
B	-•••	K	-•-	T	-
C	-•-•	L	•-••	U	••-
D	-••	M	--	V	•••-
E	•	N	-•	W	•--
F	••-•	O	---	X	-••-
G	--•	P	•--•	Y	-•--
H	••••	Q	--•-	Z	--••
I	••	R	•-•		

Question / Challenge

Which of the following bracelet contains the message "PEACE"?

A) 
B) 
C) 
D) 

T13. Labels



In a beverage factory, a labeling machine is tasked with marking bottles based on their contents: water or juice. Bottles filled with water should receive a 'W' label, while those containing juice should be labeled 'J'.
However, there have been some errors in the process. The machine has mistakenly labeled some water bottles with 'J' and some juice bottles with 'W'.
The table below details the record of bottle labeling:

		Label	
		W	**J**
Bottle content	**Water**	4	1
	Juice	2	5

Question / Challenge

How many bottles in total have the wrong label?

A) 3 **B)** 6 **C)** 7 **D)** 9

T14. Conveyor with toys

A constantly moving conveyor with different toys moves in the direction shown with a black arrow in the picture. Martin wanted to sort all the toys in the three boxes, but as he considers this task boring, he decides to play a game. The rule of the game is that when he picks up a toy, he skips the next toy that passes by him until the conveyor is empty.

Question / Challenge

Martin starts the game by taking the green car. Which toy will he pick up last?

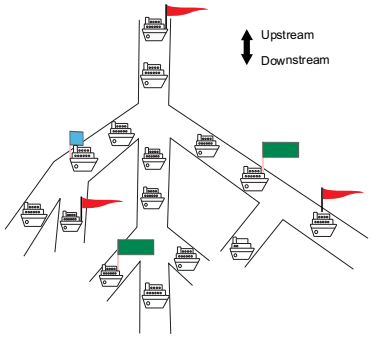
A)  **B)**  **C)**  **D)** 

Tasks T15 – T21 carry 5 points each

T15. Floating Boats

During the city festival, all boats on the river delta are decorated with flags of different colors and shapes: red triangle, green rectangle, or blue square. Only one type of flag is used for each boat. Some boats are already decorated, as shown in the right.

The city council provides flags to undecorated boats using the following rule: the color of the flag on an undecorated boat is the same as the color of the immediately neighboring boat **upstream**. This rule is applied to all undecorated boats, until all boats are decorated.



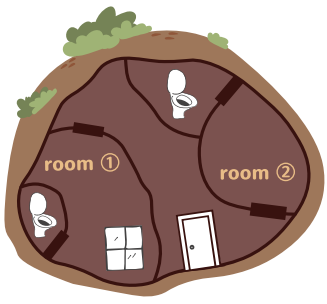
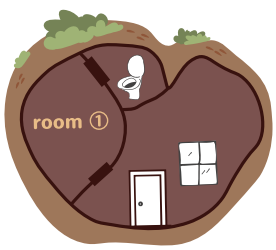
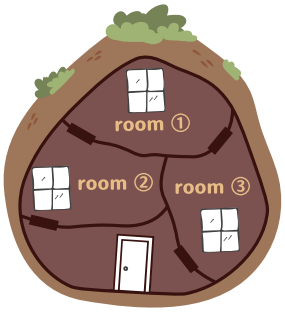
Question / Challenge

How many boats will be decorated with red flags?

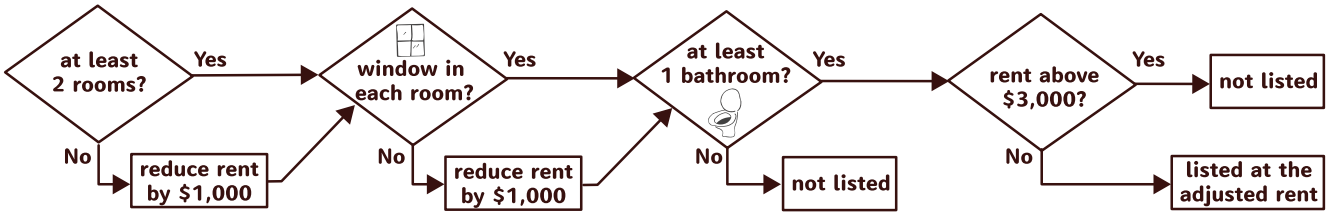
A) 8 **B)** 9 **C)** 10 **D)** 11

T16. Rental Website

Beaver Grandma owns the 3 houses below. She is trying to list them for rental on a website:

	House 1	House 2	House 3
Asking rent	$4,000	$4,000	$4,000
House plan			

Their asking rent will be adjusted by the website based on the rules shown in the chart bellow:



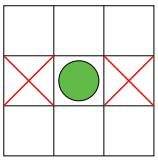
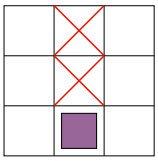
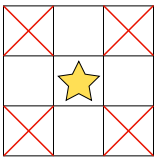
Question / Challenge

Which of Beaver Grandma's house can be listed?

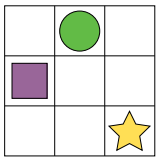
A) House 1 and 3 for $3,000 each.
B) House 1 and 2 listed for $3,000 each.
C) House 1 is listed at $3,000, and House 2 at $2,000.
D) None of the houses is listed.

T17. Symbol game

Ana is playing a game where she places a circle, square, triangle, and star on a 3x3 grid, according to the following rules.

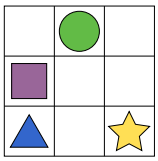
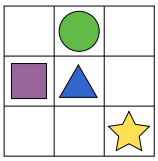
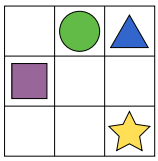
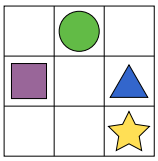
Rule	No symbol can be in the same row as the circle.	No symbol can be in the same column as the square.	No symbol can be in the same diagonal as the star.
Example			

Ana has already placed the circle, square, and star on the grid as shown.



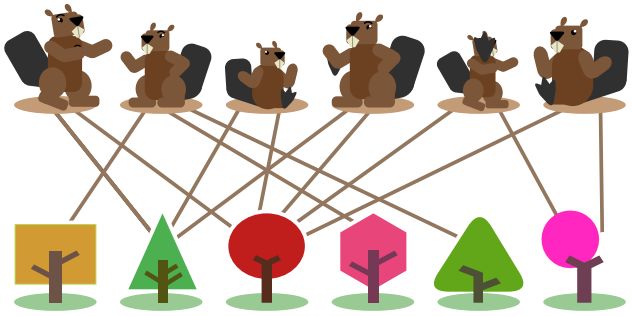
Question / Challenge

What could the grid look like after Ana places her triangle?

A) 
B) 
C) 
D) 

T18. Trees

Beavers in the village can only plant trees in designated locations. Each beaver can plant one tree per day, and only one tree can be planted in each location. The picture below shows the designated locations for each beaver.



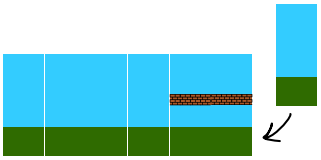
Question / Challenge

What is the largest number of trees that can be planted by the given beavers in one day?

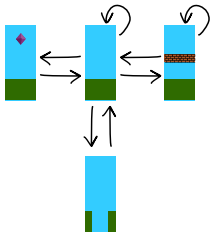
A) 3 **B)** 4 **C)** 5 **D)** 6

T19. Superbebras

In the computer game Superbebras, the background is a sequence of tiles. The computer constantly adds a new tile at the right-hand side of the sequence and removes a block on the left-hand side, at the same time. This way, the computer creates the illusion of motion.



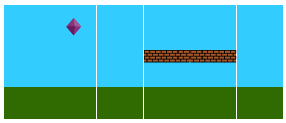
The computer chooses a new tile to be added using the diagram on the right. It looks up the previous tile and checks the arrows coming from this tile and randomly picks one of the tiles it is pointing to.



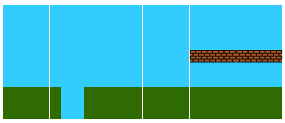
For example, after the tile  , the computer could either pick the tile  or the tile  .

Question / Challenge

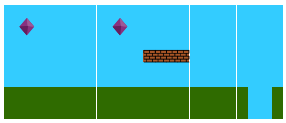
One of the following images is NOT a valid Superbebras background. Which one?



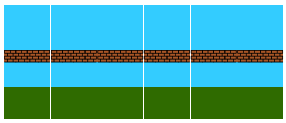
A)



B)



C)

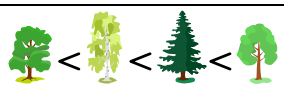
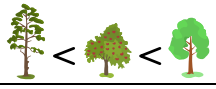


D)

T20. Tree Tours

Biologist Bea gives tree tours in Beaver Forest. During each tour, she highlights a few special trees.

From three previous tours, she recalls which trees were more popular with her tourists than others (tree 1 < tree 2 means that, in this tour, tree 2 was more popular than tree 1):

Tour 1	
Tour 2	
Tour 3	

In her next tour, Bea would like to show the more popular trees later. She decides to find a *good order* that does not conflict with the popularity order from any of the previous tours.

For instance, if Bea plans to show trees  and  in a good order, she must show  before  . Showing  before  would conflict with tour 1, where  was more popular than  .

In the new tour, Bea would like to show trees  ,  ,  ,  , and  .

Question / Challenge

What is the good order of the trees?

A) 

B) 

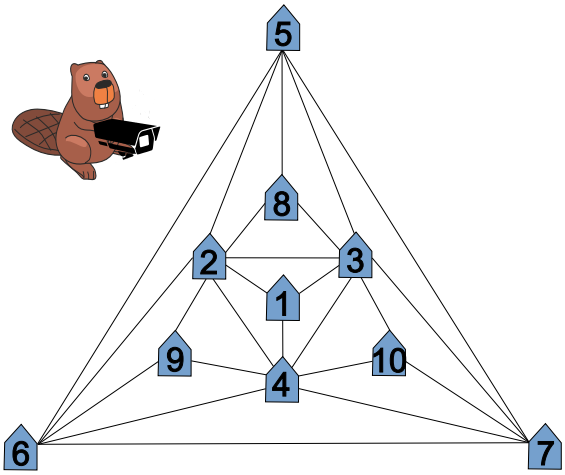
C) 

D) 

T21. Make the city safe

Beaver Leo lives in a city with 10 houses, which are connected by roads, as shown in the Figure.

He wants to make sure that the city is safe, by installing security cameras. However, Leo is efficient, and he will use the least possible number of cameras. If a camera is installed in a house, this house and all the others that can be reached by using exactly one road, are considered safe. For instance, in the Figure, if he installs a camera in house 1, then all the houses 1, 2, 3, and 4 would be considered safe.



Question / Challenge

What is the minimum number of cameras that Leo needs to make all the houses in the city safe?

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

END