UNIVERSITY OF WATERLOO

The CENTRE for EDUCATION in MATHEMATICS and COMPUTING

2025 Beaver Computing Challenge (Grades 5 & 6)

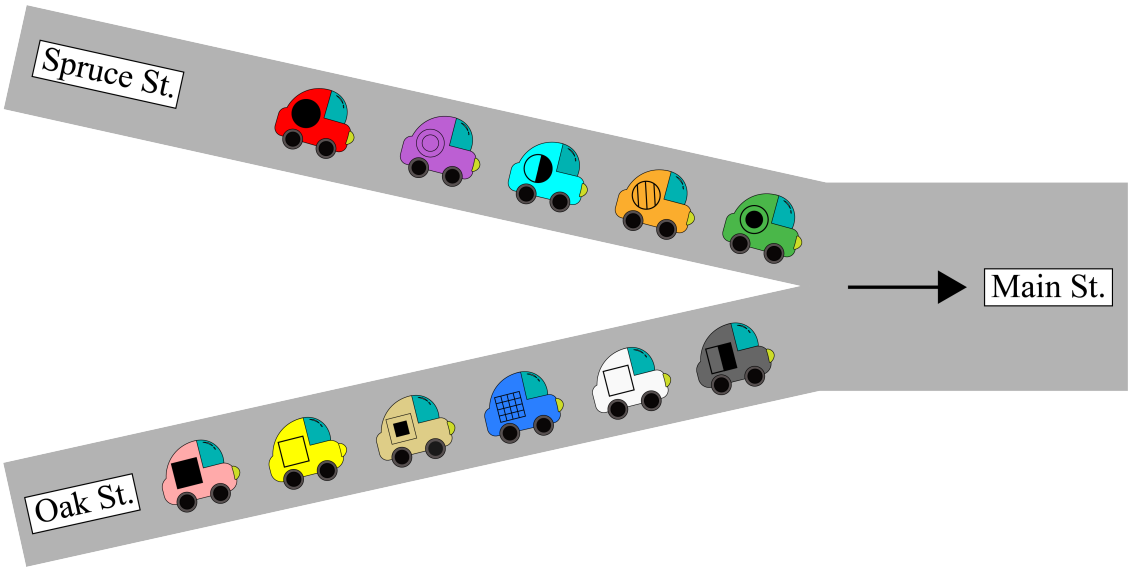
Questions

Part A

Merging Cars

Story

Cars waiting to enter Main Street are shown. The cars take turns coming from Spruce Street and Oak Street.



Question

If the first car comes from Spruce Street, which car will enter Main Street immediately after  ?

(A) 

(B) 

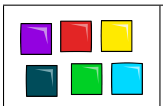
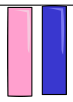
(C) 

(D) 

Building Instructions

Story

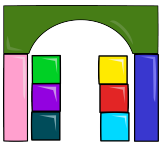
You have the following blocks:

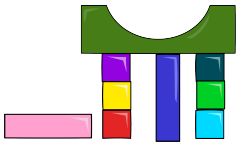
		
six cubes	one bridge	two rectangular prisms

Your friend gives you the following building instructions:

1. Take three cubes and place them on top of each other to form a tower.
2. Form a separate tower with the three remaining cubes.
3. Place the two rectangular prisms next to the cube towers.
4. Place the bridge on top of some of the blocks.

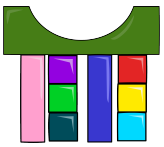
These instructions allow you to build many different structures. Here are two examples:

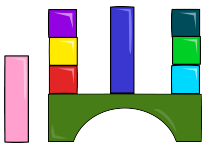


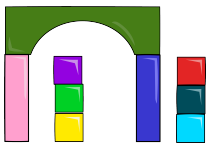


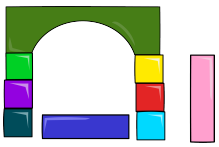
Question

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

(A) 

(B) 

(C) 

(D) 

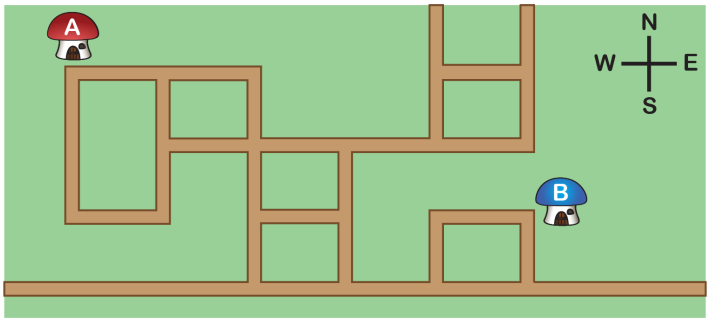
A Wrong Step

Story

Aira is walking from her house 

to her friend Bo's house 

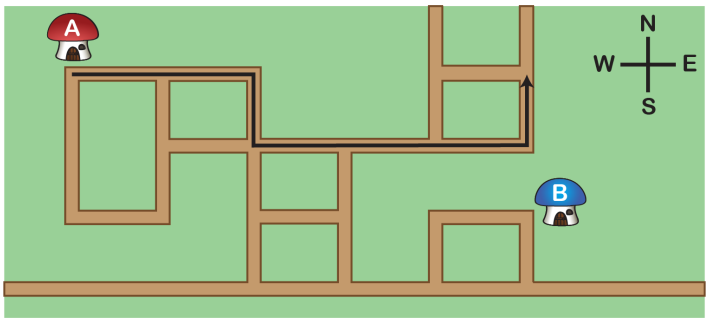
for the first time. A map of the streets between their houses is shown. All streets go either east/west or north/south.



Bo gave Aira the following instructions, where walking one *block* means walking straight until you reach the next street.

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

However, Aira made a mistake with one of the steps and did not arrive at Bo's house. Her route is shown.



Question

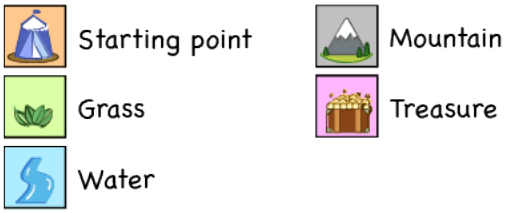
Which step did Aira **not** follow correctly?

(A) Step 1 (B) Step 2 (C) Step 3 (D) Step 4

Alex's Treasure

Story

Alex the explorer has found a treasure map. The map has a grid with different symbols, as shown.



Alex must reach the treasure from the starting point, while following these three rules:

1. They cannot step on water.
2. They must cross at least one mountain.
3. They can only move one square at a time. They can move up (↑), down (↓), left (←), and right (→). They cannot move diagonally.

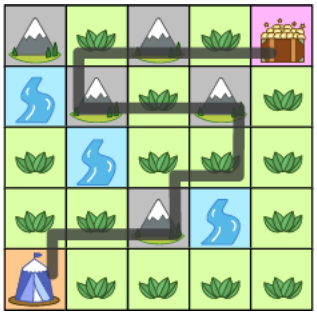
Question

Four paths are shown below. Which path leads Alex to the treasure while following all the rules?

(A)

(C)

(B)



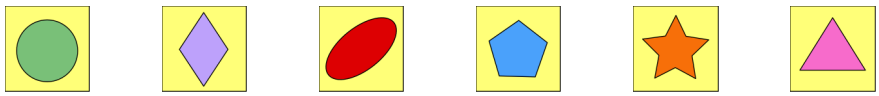
(D)

Part B

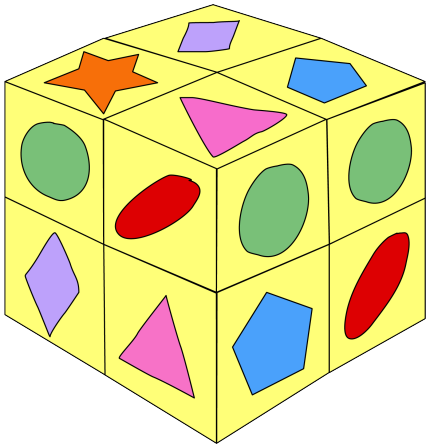
Cube

Story

A Bebras cube has a different shape on each face. The six shapes on a Bebras cube are shown.



Eight identical Bebras cubes are stacked together to form a larger $2 \times 2 \times 2$ cube, as shown.



Question

On a Bebras cube, what shape is on the face opposite the  ?

(A) 

(B) 

(C) 

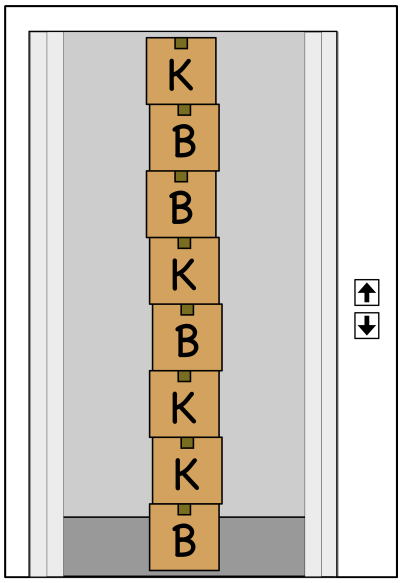
(D) 

Elevator

Story

Biwako and Kai live on different floors of the same apartment building.

They each have several boxes being delivered. Biwako's boxes are labeled B, and Kai's boxes are labeled K. However the boxes were mixed up and stacked in the elevator as shown.



Biwako and Kai each stay on their own floor. When the elevator arrives on their floor, they take all of their boxes that are on the top of the stack. Then the elevator moves directly to the other person's floor. The elevator continues to move back and forth between Biwako and Kai's floors until all the boxes have been taken.

The elevator first stops on Kai's floor.

Question

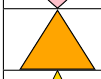
In total, how many times does the elevator stop before all the boxes have been taken?

(A) 2 (B) 3 (C) 5 (D) 6

Banner Making

Story

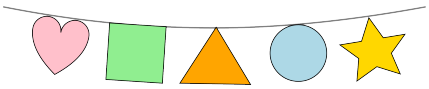
Beaver Arnie makes decorative banners using different shapes cut out of fabric. However he is very particular about the order of the shapes in the banner. In the following table, a ✓ between two shapes means they can be placed next to each other in a banner, and an X means they cannot be placed next to each other in a banner.

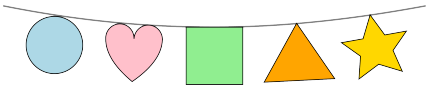
					
	X	X	✓	X	✓
	X	X	✓	✓	X
	✓	✓	X	X	X
	X	✓	X	X	✓
	✓	X	X	✓	X

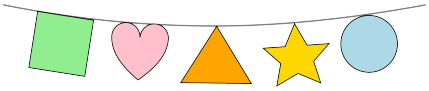
Question

Which of the following banners follows Beaver Arnie's rules?

(A) 

(B) 

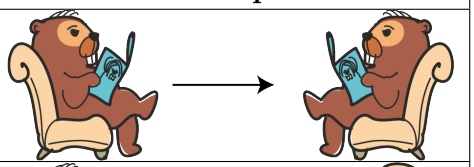
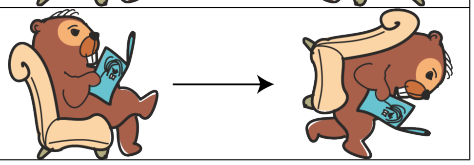
(C) 

(D) 

Transforming Photos

Story

Ximena is exploring a photo editing app on her phone. She transforms photos using the operations **M** and **R**, which are explained below.

Operation	Description	Example
M	Mirror reflection from left to right	
R	Rotation 90 degrees clockwise	

Ximena can also do multiple operations in a row. For example,

Now, Ximena starts with this photo: 

She then performs all of the following operations in order from left to right: **R R R R M R M**

Question

How will the photo look when Ximena is done performing all the operations?

(A) 

(B) 

(C) 

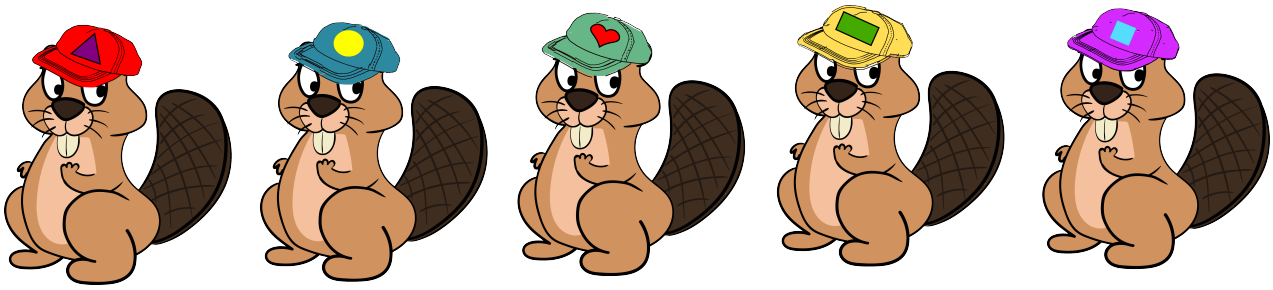
(D) 

Part C

Beaver Race

Story

Five beavers ran a race. Each beaver wore a hat with a different symbol on it. One minute into the race, the beaver wearing  was in last place. The order of the five beavers at that time is shown below.



After that, exactly three changes in position occurred:

- First, the beaver wearing  moved forward two places.
- Next, the beaver wearing  moved forward one place.
- Finally, the beaver wearing  moved forward two places.

Question

Which hat was the beaver who finished the race last wearing?

(A) 

(B) 

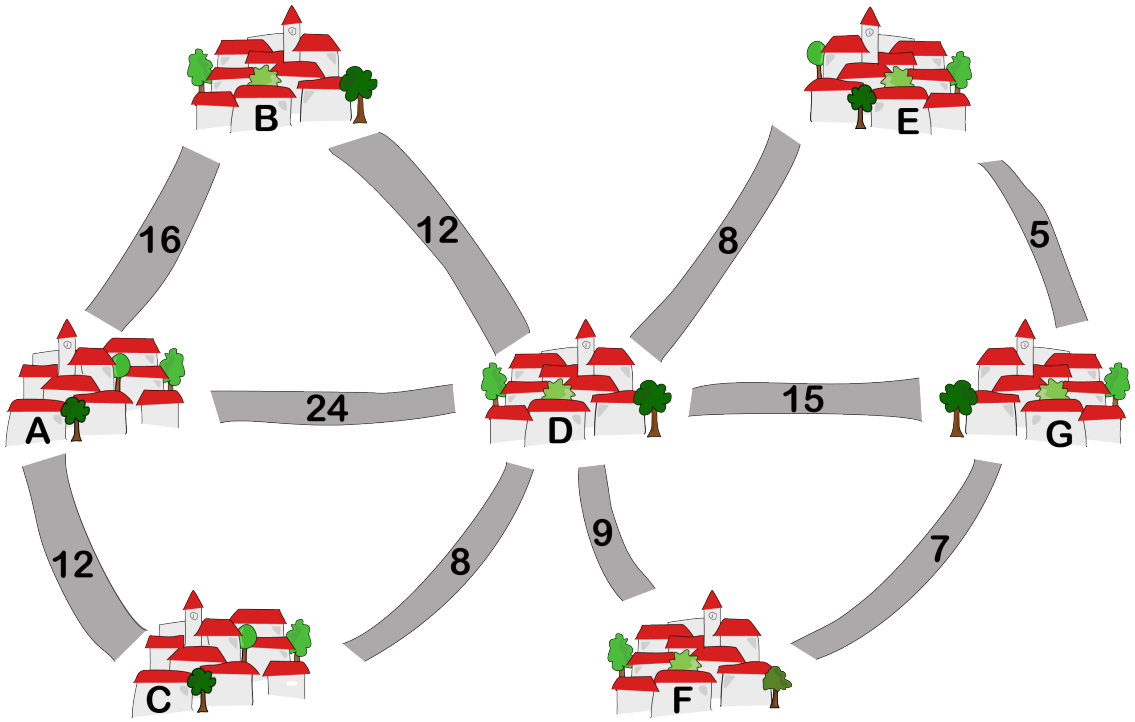
(C) 

(D) 

Visiting Grandparents

Story

Adriana wants to travel to her grandparents house by bus. In the map shown, there are seven cities and the cost of a bus ticket between two cities is written on the road connecting them. Adriana lives in the city labelled A, while her grandparents live in the city labelled G.



Question

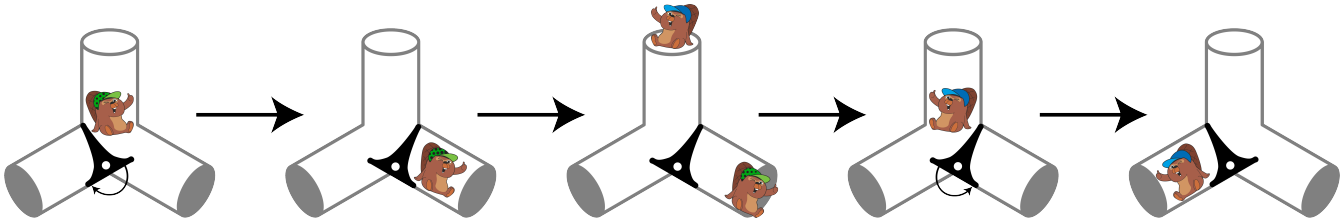
What is the least expensive total price for bus tickets from Adriana's city to her grandparents' city?

(A) 33 (B) 39 (C) 29 (D) 36

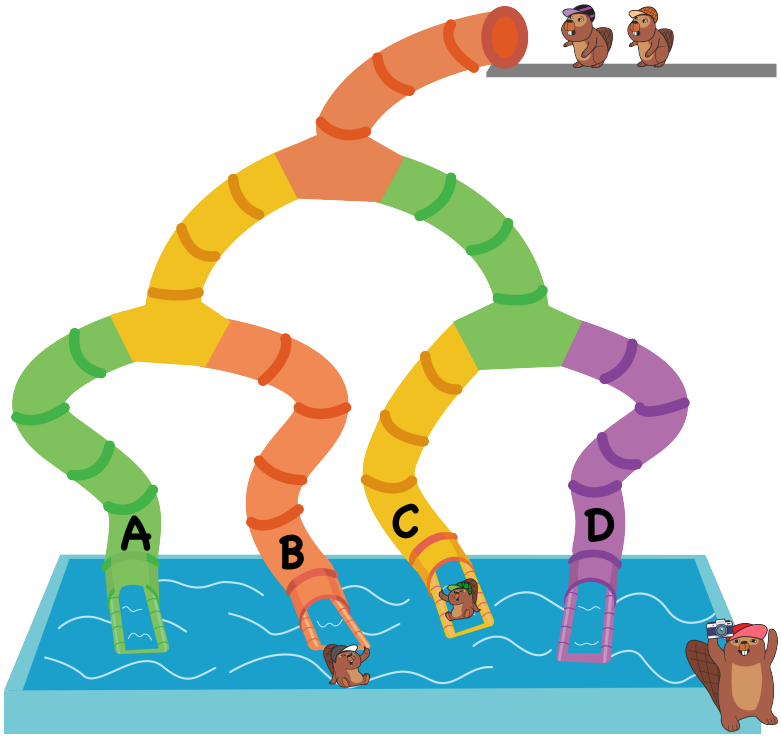
Exciting Water Slide

Story

A dynamic waterslide has three gates. When a beaver reaches a gate, the beaver is sent either left or right. This causes the gate to flip, sending the next beaver the other direction, as shown.



Little beaver Dan wants to try the waterslide. Mama beaver wants to know which slide Dan will come out of so that she can take a good picture. There were three beavers ahead of Dan. The first beaver came out of slide B and the second beaver came out of slide C, as shown.



Question

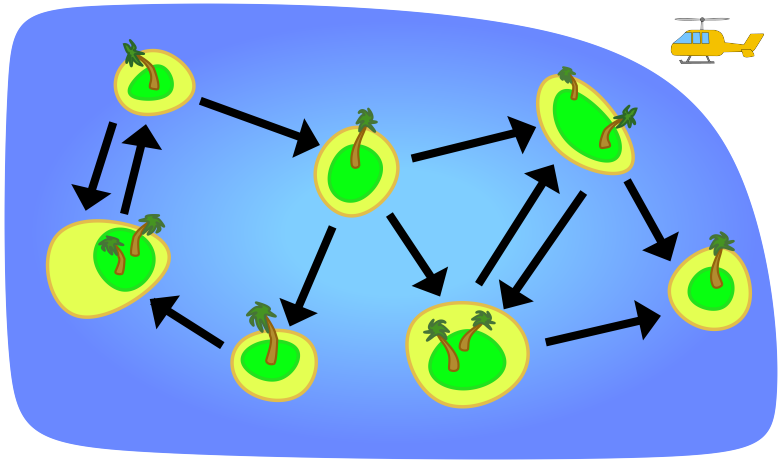
Which slide will Dan come out of?

(A) Slide A (B) Slide B (C) Slide C (D) Slide D

Research Expeditions

Story

A research team needs to investigate some islands. The map shows all seven islands they need to investigate as well as the ferry routes between islands. Arrows indicate the directions of the ferries.



During a research trip, the team lands by helicopter on an island of their choice, takes ferries to other islands, and returns to the original island where the helicopter is located. To visit every island at least once, it will take the team more than 1 research trip.

Question

What is the minimum number of research trips needed to visit every island at least once?

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