

Question 1: Rings

Sara is playing ring toss, and when a ring goes into the post, she scores the following points:

On the first toss: 5 points

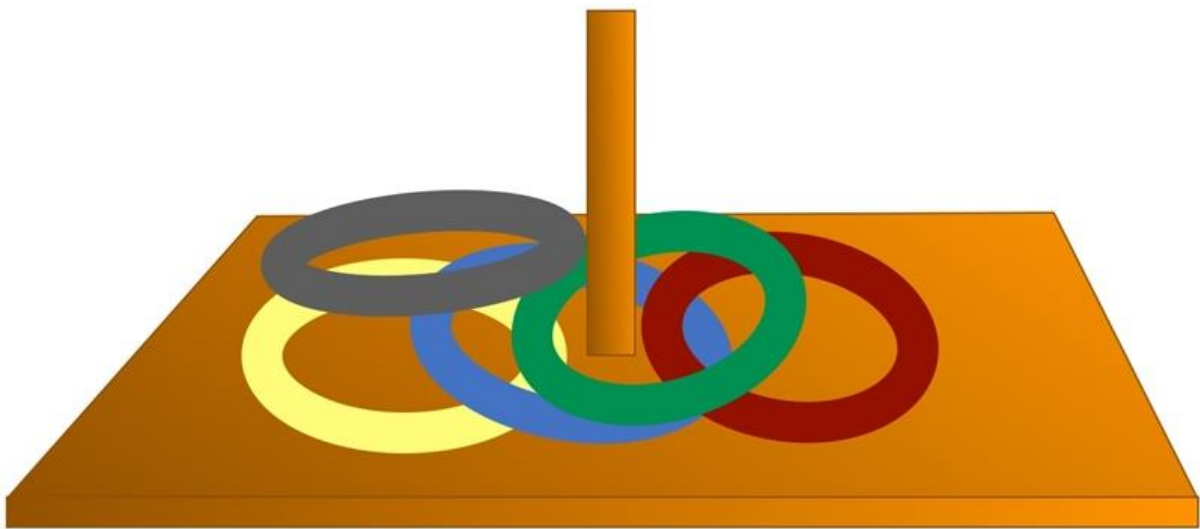
On the second toss: 4 points

On the third toss: 3 points

On the fourth toss: 2 points

On the fifth toss: 1 point

How many points did she score in this round?

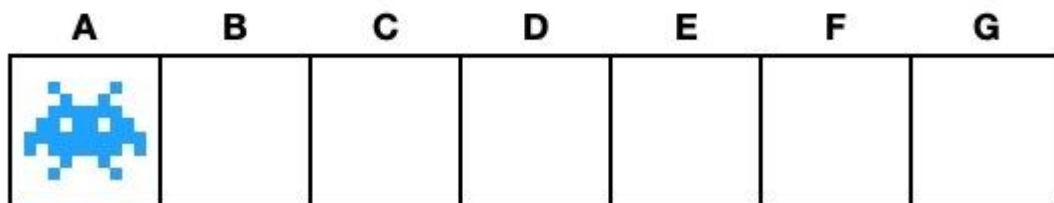
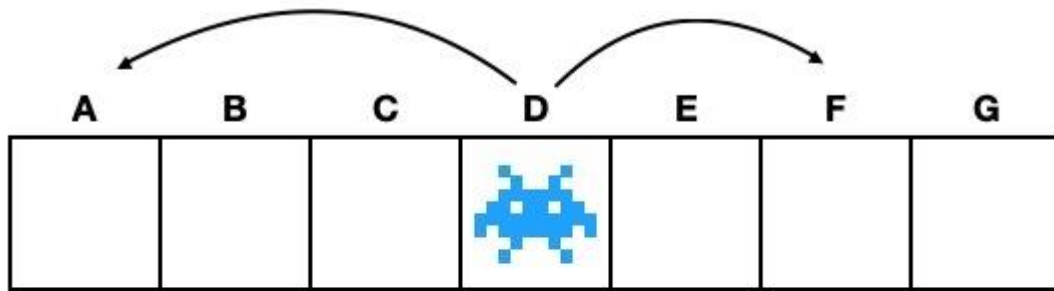


- 15 points
- 2 points
- 6 points
- 5 points

Question 2: Jumps

In this video game, we have two buttons. Pressing "right" moves the character two squares to the right. Pressing "left" moves the character three squares to the left.

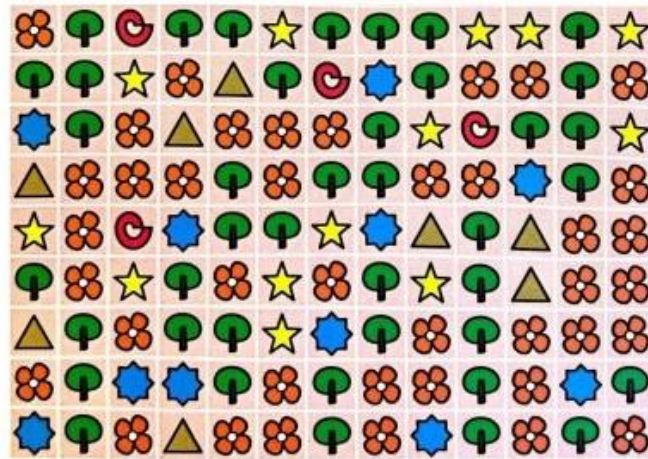
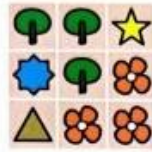
If the character starts at position A and the button is pressed three times, **in which square or squares can it end up?**



- Square E
- Square G
- Squares C and H
- Squares G and B

Question 3: Frieze

How many times does the pattern above appear in the figure below?



- 1
- 2
- 3
- 4

Question 4: Nim

In each turn of this game, you can:

Remove 1 or 2 black stones

Remove 1, 2, or 3 white stones.

Two people play, and the person who removes the last stone of either colour wins the game.

If it's your turn to play, **with which move do you win?**



- 1 black stone
- 1 white stone
- 2 white stones
- 3 white stones

Question 5: Bracelet

Which of the following four images shows what this bracelet looked like before it broke?



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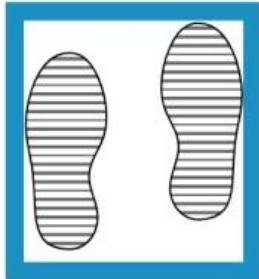
Question 6: Footprints

Four footprints have been found. The police are looking for a thief who was wearing shoes with striped soles and a thin heel.

Which of the following footprints belongs to the thief?



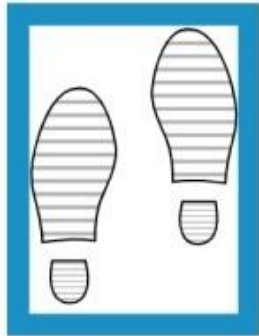
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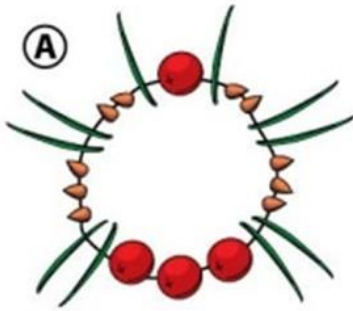
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Question 7: Necklace

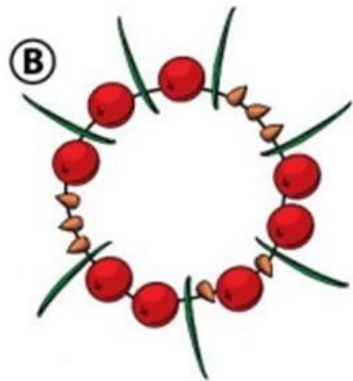
A necklace is to be made with red fruits, pine needles, and brown seeds, meeting the following conditions:

- Each group of red fruits must have a pine needle on either side.
- The number of brown seeds must be equal to the number of pine needles.

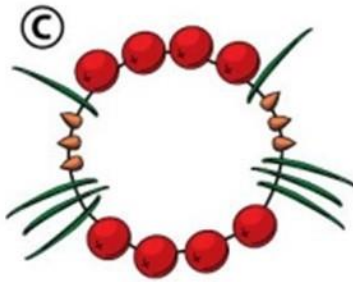
Which of the following necklaces meets these conditions?



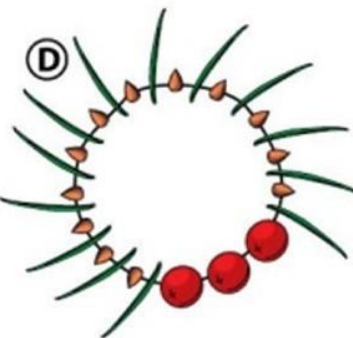
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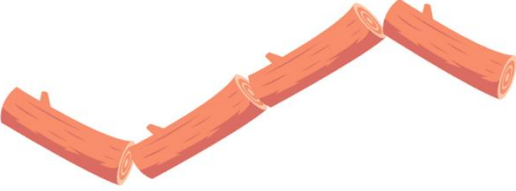


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Question 8: Logs

Beavers use logs to form structures that follow patterns. This table shows some of these patterns.

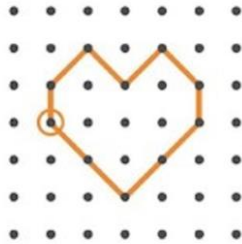
		
		
		
		

Which of the following options is the missing one?

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- 
- 
- 

Question 9: Robot heart

Emma is playing with a robot that draws lines between dots, as seen in the example.



Given that it starts from the circled dot, **which of the following button combinations draws the heart shape?**

-
-
-
-

Question 10: Ball swap

We have 4 trays: A, B, C, and D. In tray A there is an orange ball; in tray B, a blue ball; and trays C and D are empty.

If we want to swap the balls in A and B, **which of the following sequences is incorrect?**



- 1

Step 1: pick the ball in B and place it in C.

Step 2: pick the ball in A and place it in B.

Step 3: pick the ball in C and place it in A.

- 2

Step 1: pick the ball in A and place it in D.

Step 2: pick the ball in B and place it in A.

Step 3: pick the ball in D and place it in B.

- 3

Step 1: pick the ball in B and place it in C.

Step 2: pick the ball in A and place it in D.

Step 3: pick the ball in C and place it in A.

- 4

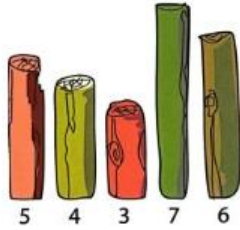
Step 1: pick the ball in A and place it in C.

Step 2: pick the ball in B and place it in A.

Step 3: pick the ball in C and place it in B.

Question 11: Log order

You have logs of different heights. You start from the leftmost log. If it is taller than the log on its right, you swap them. Then you compare the logs that are now in the second and third position and repeat the process until you get to the last pair.



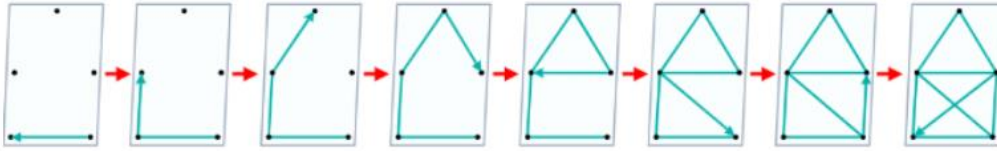
From the initial arrangement of the logs in the image, **which of these situations is impossible to reach?**

- Log arrangement with heights 4, 5, 3, 7, 6. The logs are colored green, red, red, green, and brown respectively.
- Log arrangement with heights 4, 3, 5, 7, 6. The logs are colored green, red, red, green, and brown respectively.
- Log arrangement with heights 4, 3, 7, 5, 6. The logs are colored green, red, green, red, and brown respectively.
- Log arrangement with heights 4, 3, 5, 6, 7. The logs are colored green, red, red, brown, and green respectively.

Question 12: Graphs

We were able to draw this figure without lifting the pencil from the paper or passing over the same line twice (you can pass through the same point twice).

Which of the other four drawings can be done in the same way?



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Question 13: Flip-flop

A flip-flop is a component that has two possible states. Each time a ball passes through a flip-flop, its state changes, as shown in the animation.

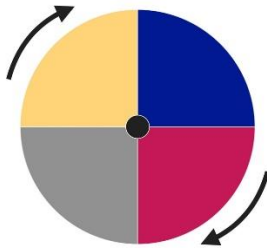
If three balls are thrown, in which tube will the third (yellow) ball fall?

<https://youtu.be/y0k3NQltUXQ>

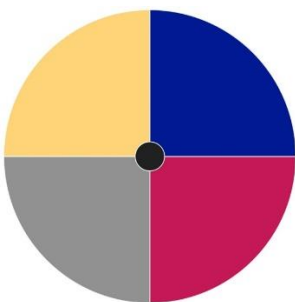
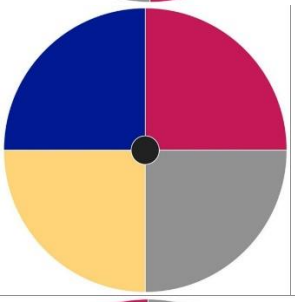
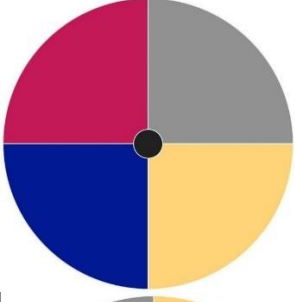
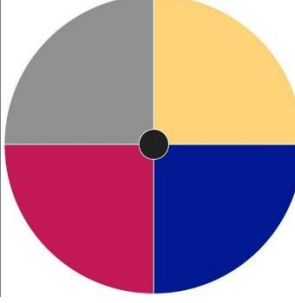
- 1
- 2
- 3
- 4

Question 14: Roulette

We have a roulette that turns 90 degrees to the right (clockwise) each time a button is pressed.



If we press the button seven times from this position, **what will its final position be?**

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- 
- 
- 

Question 15: Strip

This strip followed a pattern of three colours, but we have cut off a piece.

Which of the following can be the length of the piece we cut?



- 3 or 7 segments
- 3 or 4 segments
- Only 3 segments
- Only 4 segments

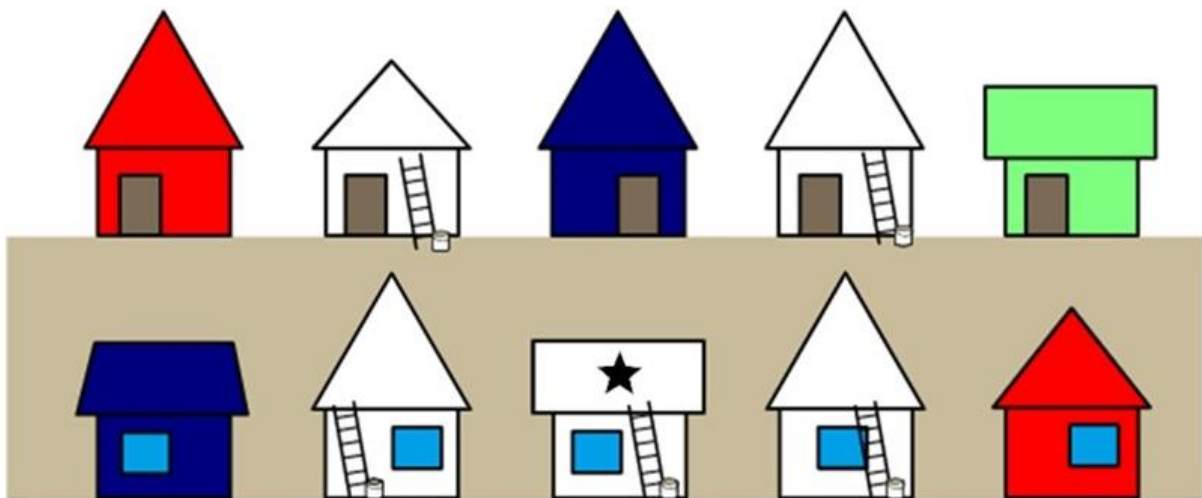
Question 16: Houses

On this street, there are five houses on each side. To paint the houses, the following rules must be followed:

- All houses must be painted red, green, or blue.
- A house cannot be the same colour as the house to its left and right.
- Two houses directly opposite each other cannot be the same colour.

As seen in the image, some of the houses have already been painted.

What colour will the house with a star on the roof be painted?

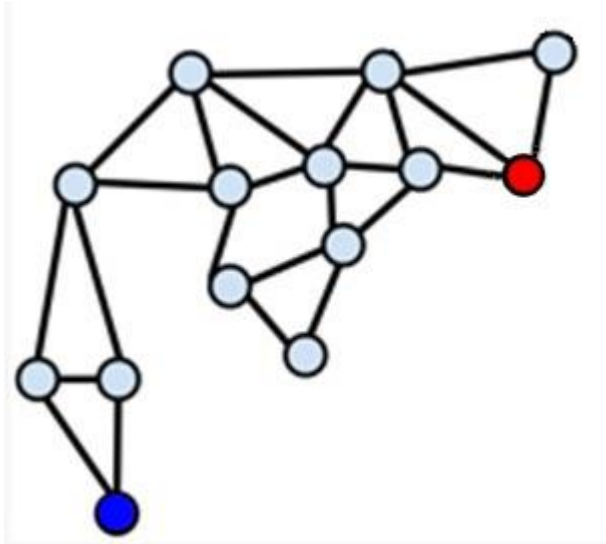


- Red
- Green
- Blue
- It cannot be determined

Question 17: Watchtower

In the image, each circle represents a watchtower. One minute after a tower is lit, the towers connected to it by a line also light up.

If we light the tower marked with a red dot, **how long does it take for the tower with a dark blue dot to light up?**



- 4 minutes
- 5 minutes
- 6 minutes
- 7 minutes