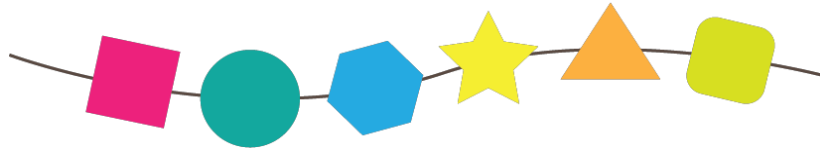


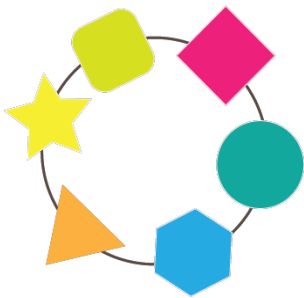
Bracelet

Emily has broken her favourite bracelet. The broken bracelet now looks like this:

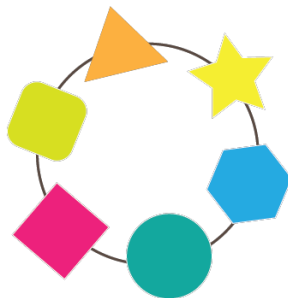


Question:

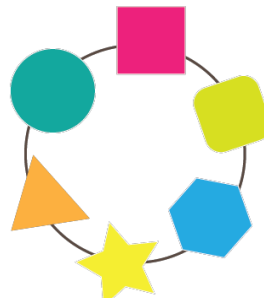
Which of the following four bracelets shows what the bracelet looked like when it was whole?



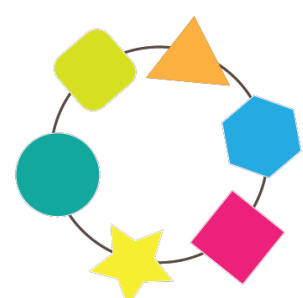
A



B



C



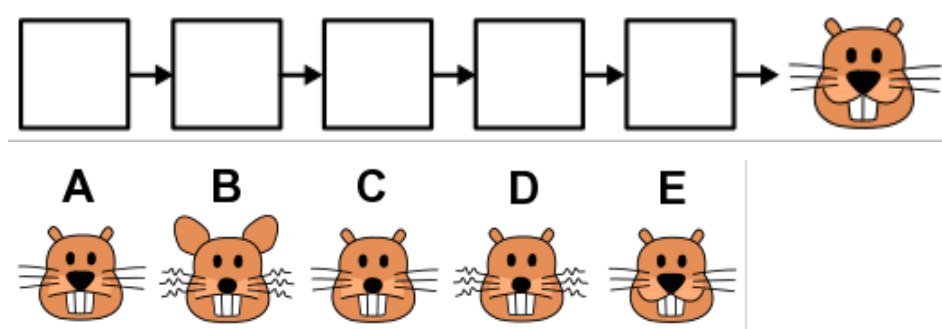
D

Animation

Taro is planning an animation of a face that is made from a sequence of pictures.

To make the animation run smoothly, only one feature of the face should change from one picture to the next.

Unfortunately, the pictures got mixed up. Now Taro must find the correct order again. Luckily, he knows which picture is last.



Question:

Put the pictures in the correct order so that Taro makes the correct animation.

Animal Competition



The beavers and dogs had a competition. In total nine animals took part.

The nine participants had the following scores: 1, 2, 2, 3, 4, 5, 5, 6,

7. No dog scored more than any beaver.

One dog tied with a beaver.

There were also two other dogs that tied with each other.

Question:

How many dogs took part in the competition?

2, 3, 5, 6 or
7

Cross Country

Three very fast beavers will compete in a cross-country run.

Mr. Brown will overtake one beaver when running uphill.

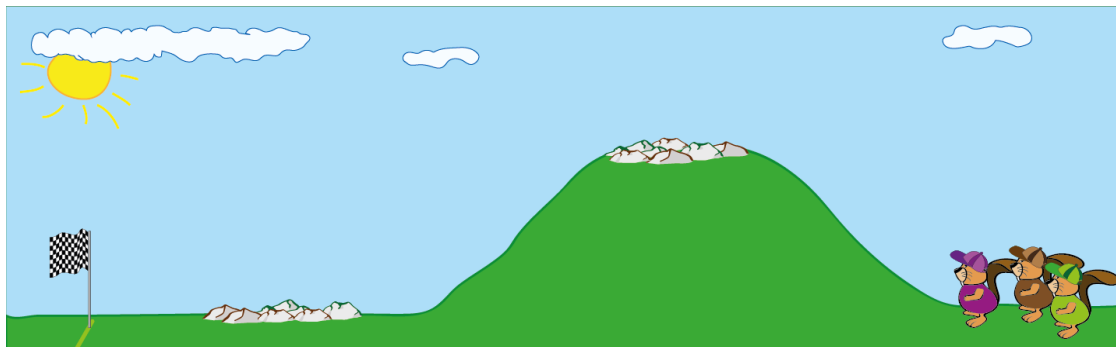
Mrs. Pink will overtake one beaver when running downhill.

Mrs. Green will overtake one beaver when running across rocks.



The terrain is shown in the picture: uphill, followed by some rocks, downhill and then some more rocks.

Mrs. Pink starts in the first position, followed by Mr. Brown and Mrs. Green.



Question:

In which order will the beavers finish the race?

- A. Mrs Pink, Mr Brown, Mrs Green
- B. Mr Brown, Mrs Pink, Mrs Green
- C. Mr Brown, Mrs Green, Mrs Pink
- D. Mrs Green, Mrs Pink, Mr Brown

Stack Computer

The Stack Computer is loaded with boxes from a conveyer belt. The boxes are marked with a Number or an Operator (+, -, * or /).

The computer is loaded until the top box is a box marked with an operator. This operator is then used on the two boxes below it. The three boxes are then fused into one single box and marked with the outcome of the calculation.

In the Stack Computer, calculations are entered in a different way to a normal calculator.

Examples:

$2+3$ must be entered as 2 3 +

$10-2$ must be entered as 10 2 -

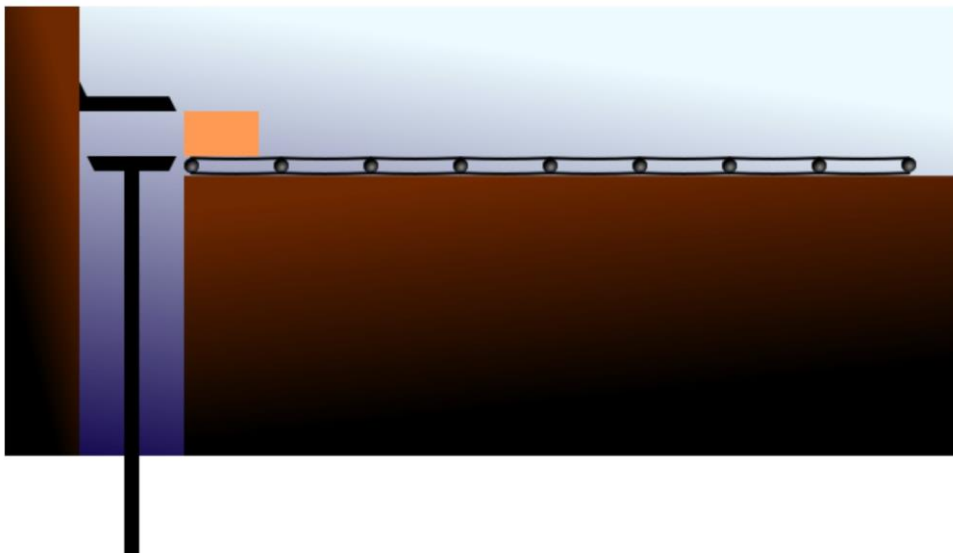
$5*2+3$ must be entered as 5 2 * 3 +

$5+2*3$ must be entered as 5 2 3 * +

$(8-2)*(3+4)$ must be entered as 8 2 - 3 4 + *

Question:

How should the following computation be entered: $4*(8+3)-2$?



Throw the Dice

After school the young beavers often play together.

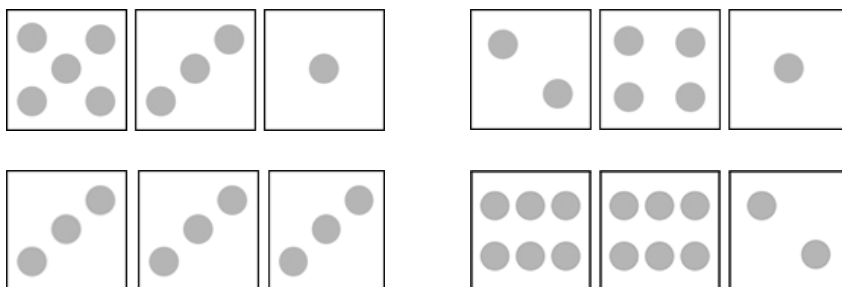
To avoid quarrels about where to play, they throw a normal six sided die.

The decision is found according to this rule:



Question:

Which sequence of throws will send the young beavers to the sports field?



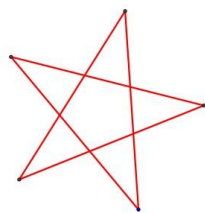
Drawing Stars

Stella the beaver loves to draw stars. She has devised a system for labelling her stars according to their shape. She uses two numbers:

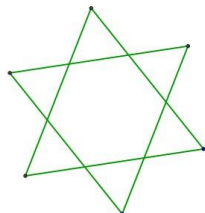
A number of dots for the star.

A number indicating if a line from a dot is drawn to the nearest dot (the number is 1), the second closest dot (the number is 2), etc.

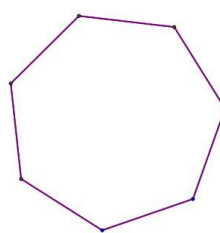
Here are four examples of Stella's labelling system:



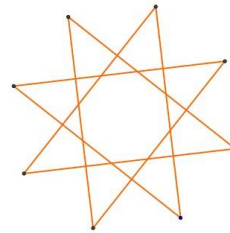
5:2



6:2



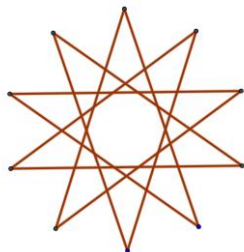
7:1



8:3

Question:

How would Stella label the following star?



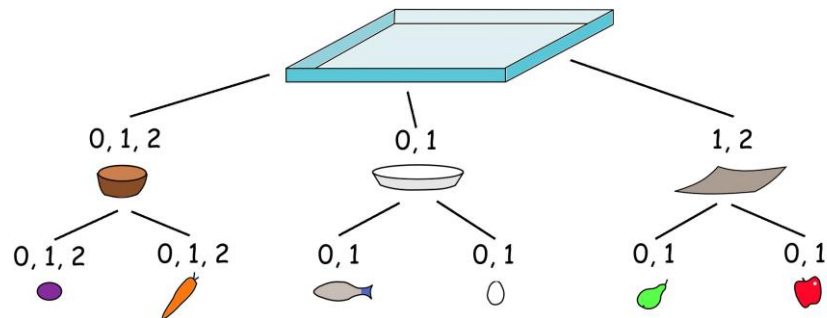
9:3 9:4 10:4 or 10:5

Beaver Lunch

Hm, what to take for lunch today?

The cafeteria gives instructions on how to choose a Beaver lunch.

This is shown as a diagram:



Below the tray you see different types of food containers.

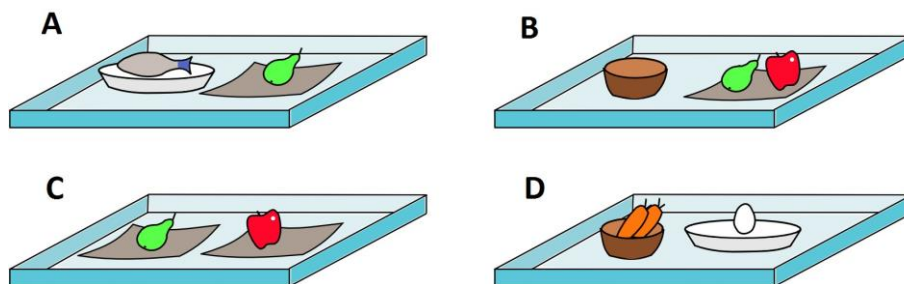
The numbers indicate how many containers of this type can be added to a tray.

Each container can only have food items put in it that are shown below it.

The numbers indicate how many food items of this type can be added to the containers.

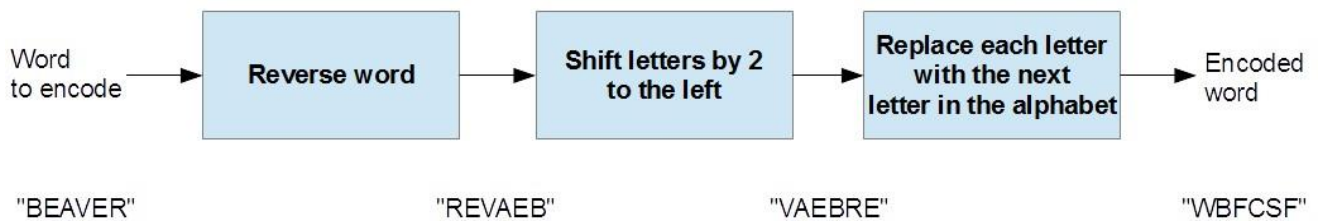
Question:

Which of the following lunches is not a proper Beaver lunch?



You Won't Find It

Beaver Alex and beaver Betty send each other messages using the following sequence of transformations on every word.



For example, the word "BEAVER" is transformed to "WBFCSF".

Beaver Betty receives the encoded message "PMGEP" from beaver Alex.

Question:

What did Alex want to say?

RIVER, KNOCK, FLOOD or LODGE

Bowl Factory

A factory produces sets of 6 bowls of different sizes. A long conveyor belt moves the bowls one by one, from left to right.

Bowl production places the 6 bowls of each set onto the conveyor belt in a random order.

Before packing the bowls, they need to be sorted to look like this:



To help with the sorting, the factory places workers along the conveyor belt.

When a set of bowls passes a worker, the beaver will swap any two neighbouring bowls which are in the wrong order.

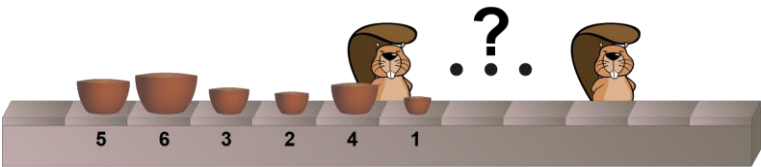
The worker will keep doing this until the set of 6 bowls has finished passing.

See how the order of a set of bowls changes as it passes one worker:














Question:

How many workers should be put along the line to sort the set of bowls on the right?



Fireworks

Two beavers live in lodges separated by a large forest. They decide to send messages to each other by shooting fireworks into the sky above the trees. Each message is a sequence of words, though the beavers only know five different words. The beavers can shoot two types of fireworks, one after the other, and know the following codes:

Word	Code
Log	 
Tree	  
Rock	  
River	 
Food	

For example, to send the (rather strange) message "food, log, food", a beaver would shoot:



Question?

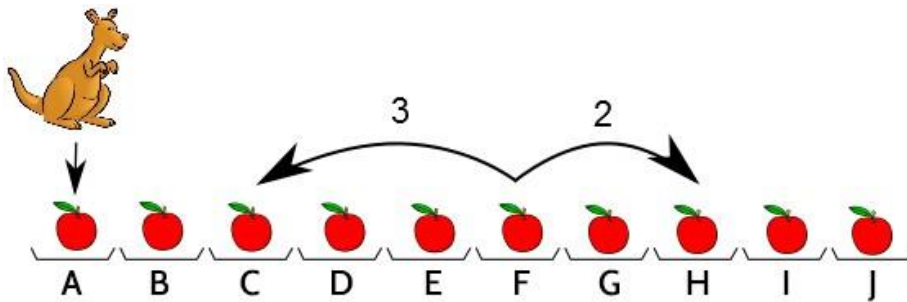
How many **different** meanings can the following sequence of fireworks have?



0, 1, 2, 3, or 4

Kangaroo

There are 10 plates in a row. There is one apple on each plate.



Thomas the kangaroo loves to jump. First, he jumps onto the leftmost plate with the letter A. On each single jump after this, he either jumps forward two plates, or backwards three plates. (An example of the two possible jumps from one plate is shown with arrows in the picture.)

Thomas only jumps onto plates with an apple.
If he jumps onto a plate, he collects the apple from it.

Question:

If Thomas collects all 10 apples, which apple does he collect last?

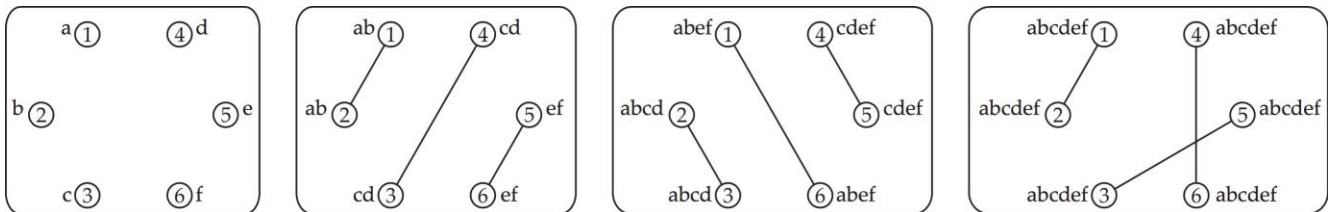
A, B, C, D, E, F, G, H, I or J

Spies

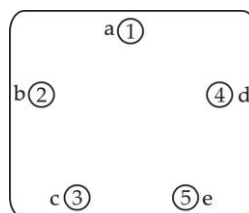
Every Friday, six spies exchange all the information they have gathered during the week. A spy can never be seen with more than one other spy at the same time. So, they have to have several rounds of meetings where they meet up in pairs and share all the information they have at that point.

The group of 6 spies needs only three rounds to distribute all their secrets:

Before the meetings each spy holds a single piece of information. (spy 1 knows 'a', spy 2 knows 'b', etc.). In the first round spies 1 and 2 meet and exchange information so now both know 'ab'. The diagrams show which spies meet in each round with a line. It also shows which pieces of information they all have. After three rounds all information has been distributed.



After an international incident one spy has stopped attending the meetings. What is the minimum number of rounds needed for the five remaining spies to exchange all information?



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