2019 Beaver Computing Challenge (Grade 5 & 6) Questions
Smoke signals were used by different groups of ancient peoples to send messages. A very simple code using small and large smoke clouds is given below.

<table>
<thead>
<tr>
<th>north</th>
<th>east</th>
<th>south</th>
<th>west</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![Small Cloud]</td>
<td>![Large Cloud]</td>
<td>![Small Cloud]</td>
</tr>
</tbody>
</table>

Messages are read from top to bottom. The following message contains an error. Either one small cloud should be a large cloud or one large cloud should be a small cloud.

What is the correct message?

(A) north
(B) east
(C) south
(D) west
Beaver Coins

Story

Beavers use coins with the following values:

16  8  4  2  1

Question

Which of the following total values can be made using exactly three coins?

(A) 23
(B) 2
(C) 38
(D) 13
In the parking lot shown, each car is either parked in a parking space or in front of two parking spaces.

Cars that are parked in front of two parking spaces may be moved forward or backward in order to allow blocked cars to exit. For example, Car A is not blocked and can exit without any other cars moving; however, Car L is blocked by Car Q. If Car Q is moved, then Car L can exit.

**Question**

Which car **cannot** exit its parking space unless two different cars move?

(A) Car G  
(B) Car H  
(C) Car I  
(D) Car B
A beaver has a box with an opening on the right-hand side.

At any time, the beaver can take out the rightmost ball from the box, or put in a new ball from the right. For example, if the beaver wants \( \triangle \) in between \( \heartsuit \) and \( \bigcirc \), it needs to take out \( \bigcirc \), put in \( \triangle \), and then put in \( \bigcirc \).

Now suppose the beaver has five balls in the box as shown, and two balls (\( \triangle \) and \( \square \)) out of the box.

The beaver wants the balls in the box to be in the order: \( \heartsuit, \bigcirc, \star, \triangle, \square, \square, \heartsuit, \square \).

What should the beaver do?

(A) Take out \( \square \), take out \( \triangle \), put in \( \triangle \), put in \( \square \), put in \( \triangle \), and then put in \( \square \).

(B) Take out \( \square \), take out \( \triangle \), put in \( \triangle \), put in \( \square \), put in \( \square \), and then put in \( \square \).

(C) Take out \( \square \), put in \( \triangle \), put in \( \square \), and then put in \( \square \).

(D) Take out \( \square \), take out \( \triangle \), put in \( \square \), put in \( \square \), put in \( \square \), and then put in \( \triangle \).
Koko’s Animals

Koko has six animals and needs to place each one in its own pen. Two animals cannot be placed in touching pens if one animal will eat the other. In the diagram shown, arrows point from an animal to all the other animals that it will eat.

For example, the wolf will eat the chicken, but the wolf will not eat the worm.

Question

Which of the following choices is **not** a good placement?

(A) ![Diagram A]

(B) ![Diagram B]

(C) ![Diagram C]

(D) ![Diagram D]
A tower is *special* if all towers to the left of it are shorter, and all towers to the right of it are taller.

How many special towers are there?

(A) 1  
(B) 2  
(C) 3  
(D) 4
Ancient Code

Beaver Cleveria discovered a table of symbols carved in wood.

Later, Cleveria sees the following coded message on a tree:

What is the message?

(A) LOVEWATER
(B) SLEEPDAYS
(C) LOVEMYSUN
(D) CAREFORME
There are five positions in the beaverumba dance. Each position after the first involves moving either exactly one arm or exactly one leg from the position before it. Robert remembers the first position of the dance but forgets the correct order of the other four positions.

<table>
<thead>
<tr>
<th>first position</th>
<th>other four positions</th>
</tr>
</thead>
</table>

What is the third position of the dance?

(A) ![Image](image_A)

(B) ![Image](image_B)

(C) ![Image](image_C)

(D) ![Image](image_D)
An astronaut’s map is shown. It shows all of the possible travel routes between planets. For each route, it shows whether it can be travelled by rocket 🛰️ or by spaceship 🚀, or by both rocket and spaceship.

For example, 🛰️ 🚀 🛰️ 🚀 🚀 🛰️ is a list of space vehicles that will take the astronaut from 🌋 to 🌟. Suppose the astronaut wants to travel from 🌋 to 🌟.

Which of the following is not a list of space vehicles that the astronaut could take?

(A) 🛰️ 🚀 🛰️ 🚀 🚀 🛰️

(B) 🛰️ 🚀 🚀 🚀 🚀 🛰️

(C) 🚀 🚀 🚀 🚀 🚀 🚀

(D) 🛰️ 🚀 🛰️ 🚀 🛰️ 🛰️
A beaver believes plates are only arranged properly if all the large plates are on the left, followed by all the medium plates, followed by all the small plates. For example, the beaver believes the three large plates, three medium plates, and two small plates shown are arranged properly.

The beaver would like to add a large plate and arrange them properly.

Of the eight original plates, what is the fewest number of plates that must be moved?

(A) 2
(B) 3
(C) 4
(D) 5
Berto and seven of his friends are sitting in a circle. They are all facing inwards.

We know the following facts about where the friends are sitting:

1. Alice is sitting directly across from Duc, as shown.
2. Greta and Eugene are both sitting beside Haakim.
3. Franny is not sitting beside Alice or Duc.
4. There is someone who is sitting next to both Greta and Chika.
5. Eugene is beside Duc, on Duc’s left.

Which of these orders of friends, in a clockwise manner, is correct?

(A) Alice, Berto, Greta, Duc, Chika, Eugene, Franny, Haakim
(B) Alice, Greta, Haakim, Eugene, Duc, Berto, Franny, Chika
(C) Alice, Chika, Franny, Berto, Duc, Eugene, Haakim, Greta
(D) Alice, Haakim, Eugene, Greta, Duc, Franny, Berto, Chika
A beaver visits 9 of the 15 sections in the garden shown. It begins at the top left section and ends at the bottom right section. The beaver only moves down or right and it picks all the flowers in each section it visits.

What is the maximum number of flowers that the beaver can pick?

(A) 39
(B) 38
(C) 58
(D) 41