Electronic Display
A four-digit robotic display shows only the digits 1, 2, 3, and 4. How many different numbers can be displayed?

Can You Cut It?
A strip of paper is 63 cm long. You want to cut the paper into the fewest number of small strips so that one or a combination of the smaller strips can be joined to make every length from 1 cm to 63 cm.

- How many cuts will you make?
- What are the lengths of the small strips?
A Confusing Transaction

Grishma bought a used bike at a 50% off sale. She didn’t use it much, so she sold it for 50% more than she paid for it. About three weeks later, Grishma bought the bike back for 50% less than she sold it for. Her friend Veronica really wanted the bike, and offered 50% more than Grishma paid for it the second time.

1. Did Grishma make or lose money?

2. What percent of the original investment did she make or lose?

3. If the bike’s original price was $100, what was Grishma’s net gain or loss?

Too 2

How many numbers can you write using:

1. Two 2’s and no other symbols?
2. Three 2’s and no other symbols?
In each problem, solve for A, B, and C.

1. \[ A - B = 12 \]
   \[ B - C = 4 \]
   \[ A + B + C = 53 \]

2. \[ A - B = -15 \]
   \[ B - C = 19 \]
   \[ A + B + C = 59 \]

3. \[ A - B = \frac{1}{8} \]
   \[ B - C = \frac{1}{4} \]
   \[ A + B + C = \frac{2\ 1}{8} \]

Value It!
What is the maximum possible value of \((a^b)c\) if \(a\), \(b\) and \(c\) are replaced by the following numbers in any order?

A. 0, 2, and 4
B. 1, 2, and 5
C. 3, 4, and 6
Balzano is a puzzle that will tap into your logical reasoning abilities. Read the directions carefully, then try your hand at Balzano Shapes.

**Directions:**

Your job is to figure out the Desired Arrangement of three or more shapes from clues that give information about the shapes and their locations. Each clue consists of two parts.

The **Arrangement Column** shows sets of shapes in rows. In the Balzano below, the second row is arranged in order from left to right, triangle, circle, hexagon.

**Correct Shape in the Correct Position** identifies the number of shapes that are in the Desired Arrangement AND in the right positions. The second row has no shapes that are in the Desired Arrangement and in the right position.

**Correct Shape in the Wrong Position** identifies the number of shapes in the Desired Arrangement that are the right shapes BUT not in the right positions. There are two of these in the second row.

**Incorrect Shape** identifies the number of shapes that are not in the Desired Arrangement. There is one of these in the second row.

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<thead>
<tr>
<th>Arrangement</th>
<th>Correct shape in correct place</th>
<th>Correct shape in wrong place</th>
<th>Incorrect shape</th>
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