

On the Subject of Binary Juggle

This module takes "juggling numbers" to another level.

The module starts with 6 balls in the first stage, then switches to 8 new balls in the second. Each ball presents 4 pieces of information you need to note down to solve the module.

- Color
- Rotation
- Symbol
- Direction

Use the 4 characteristics of each ball to find its matching binary digit in the table, then join the digits in the exact order the balls were juggled.

		Clockwise				Counterclockwise			
Left		Red	0	0	1	1	0	1	0
		Green	1	1	1	0	1	0	0
Right		Yellow	1	1	0	1	0	1	0
		Magenta	0	0	1	0	1	0	1
Left		Red	1	0	0	1	0	0	1
		Green	0	1	0	0	1	1	0
Right		Yellow	1	0	1	0	1	1	0
		Magenta	0	1	0	1	0	0	1

Determine the amount of juggling

- If more balls move to the right than rotate counterclockwise, juggle according to the number of 1s in your binary string.
- Otherwise, if more balls move to the left than rotate clockwise, juggle according to the number of 0s in your binary string.
- Otherwise, juggle based on the difference between the number of 1s and 0s.

How to juggle numbers the correct way

1. Split the binary string into two equal halves.

$$0110101011 \rightarrow 01101 | 01011$$

2. For each juggle, take the leftmost digit of the right half and place it at the front of the left half.

$$01101 | 01011 \rightarrow \underline{0}1101 | 1011$$

3. Then take the rightmost digit of the left half and place it at the end of the right half.

$$\underline{0}01101 | 1011 \rightarrow 00110 | 10\underline{11}$$

Repeat steps 2 and 3 the required number of times. Afterward, merge the two halves into a single binary string and press every ball whose position matches a 1. Once all correct balls are pressed, the current stage is solved.