Mathematics of Games - MIT Spark 2026

NIM (https://goo.gl/dUlfca)
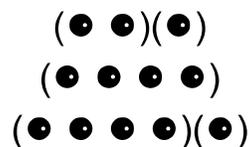
Rules

- ➢ Make rows of stones.

● ● ●
● ● ● ●
● ● ● ● ●
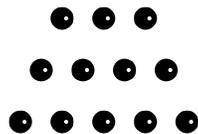
- ➢ In your turn, take as many stones as you want but only from one row.
- ➢ The last person to move, wins.

Strategy

- ➢ Group the stones in each row into groups whose size is a power of two (1, 2, 4, 8,...).
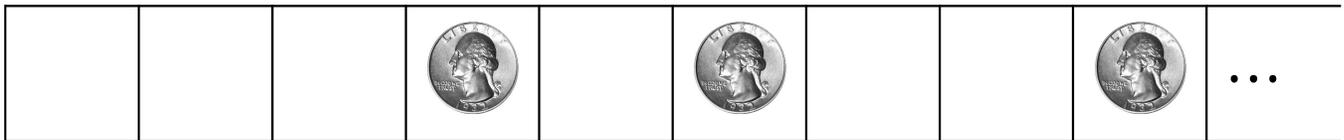
(● ●)(●)
(● ● ● ●)
(● ● ● ●)(●)

- ➢ Always leave your opponent with an even number of groups of each size.

Silver Dollar Game

Rules

➢ Place some number of quarters on a strip of squares.

➢ In your turn, move a quarter any number of squares to the left without jumping.
➢ The last player to move, wins.

Strategy

The SIlver Dollar game is equivalent to Nim if you count the size of every other gap. With an odd number of quarters the last gap is between the leftmost quarter and the end of the strip.