

About Nim...

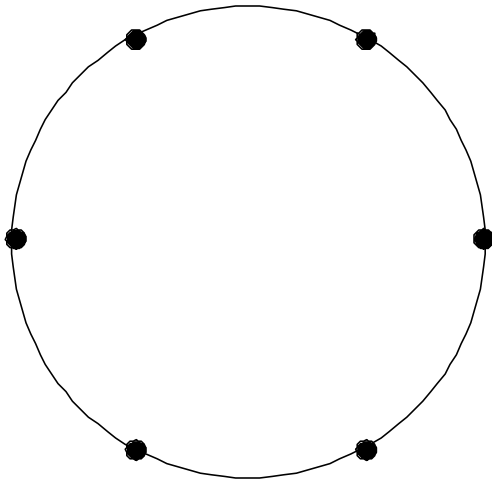
What is the game of nim?

The game of nim is an ancient game.

About Sim...

What is the game of Sim?

The game of sim is a circle puzzle for two players. First a circle is drawn and 6 equally spaced points are marked. (See the lunchbox note about hexagons to show that the radius of the circle is equal to the distance between the points.) Each player selects a color. In each turn, players connect two dots that have already not been connected. The object is to avoid making a triangle of your color that has 3 vertices (corners) on the circle. The first player that makes a triangle loses.



The Solution...

How to ALWAYS WIN:

Always make sure that you are the last player to play to have their first turn. As the number of game pieces removed for each round totals to "4" you will win. For example, if your partner removes 2, then you remove 2. If your partner removes 3, then you remove 1. On your last round, leave only one piece so that the other player is forced to remove it and lose. Can you see why you will always win. Four is a factor of 40 so in 10 rounds you will win, regardless of your partners strategy.

Can you extend this solution for nim-like games? What if there were more players or more markers? Can you see that as long as you are the last player in each round and you make the total number of counters removed for that round a factor of the total number of counters.

References

"How Math Works: 100 Ways Parents and Kids can share the wonders of mathematics," By Carol Vorderman, Reader's Digest, 1996.

Lunchbox Math Bytes

*easy to digest mathematics for
your lunchbox*

Always Win The Game of Nim

*(but still practice good
sportsmanship).*

You will need to pack:

20 candy markers. (M&Ms or Lifesavors, etc.)

2 colored pencils

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The Game of Nim

The Game Pieces:

You will need 20 game counters, like 20 pieces of candy, for each game.

The Rules of Nim:

Two players take turns removing counters. During each turn, the player may remove one, two or three counters. At the end of each round (when each player has had one turn), you may wish to eat the candies. The player who picks up the last counter loses the game.

How to play:

Lay all of the counters down on the table in a pile. In round 1, the first player removes one, two, or three counters, then the second player removes one, two, or three counters. The game continues in rounds until one of the players is forced to remove the last piece.

Play the game a few times and see whether you can figure out a system so that you will always win.

(Just in case the cafeteria is messy, use the playing board at the right to place your unwrapped counters on.)

