

Two-pile 21

In this game there are 15 tokens in one pile and 6 tokens in a second pile.

Play the game with a partner. Can you find a strategy for one player to the other to win?

Which of these statements do you think is true?

- _____ The first player will always win.
- _____ The second player will always win.
- _____ It is just a matter of luck and anyone can win.

Can you justify your choice?

This time one pile has 10 tokens and the other pile has 11 tokens.

Play the game with a partner. Can you find a strategy for one player to the other to win?

Who do you think would win:

- A game with 5 tokens in one pile and 6 in the other? _____
- A game with 5 tokens in one pile and 7 in the other? _____
- A game with 5 tokens in one pile and 8 in the other? _____

Can you explain why?

Is the following conjecture true?

Conjecture: Suppose there are two piles with s tokens in one pile and t in the other.

Kuparr will win if s and t have the same remainder when divided by 3. Robyn will win otherwise.

If it is, prove it. If it isn't, write the correct conjecture and prove it.
