



1 Game of Chests

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Challenge

Every year, the *Frosty Bank of Borrealis*, the venerable financial capital of the North Pole, pays the elves their salaries. But this winter, Santa Claus has issued a new decree: No one can simply receive their wages — every elf must earn them in a game. For the young workshop elf Johanna Snow, the bank has come up with a particularly clever challenge. At the beginning, there are three chests in front of her, completely empty. On the table next to them are 2025 coins with integer values from 1 to 2025, each value occurring exactly once.

The rules of the game are the following:

- Each turn, the bank chooses one of the three chests.
- After that, Johanna must take one of the coins left on the table and place it in the chosen chest.
- This is repeated until all coins have been distributed among the chests.

Only then, at the very end, Johanna is allowed to choose one of the three chests and receives its contents as her salary.

Since the attempt to switch to self-driving sleds using AI failed miserably, leaving a big hole in the North Pole's finances, the bank will try to keep Johanna's payout as low as possible. What is the highest amount that Johanna can still guarantee for herself, assuming she plays with an optimal strategy? What are the last two digits of this amount?

Note: A strategy is called optimal if there is no other strategy that guarantees Johanna a higher minimum amount.

Possible Answers:

1. 00
2. 12
3. 25
4. 38
5. 47
6. 50
7. 63
8. 75
9. 86
10. 99