Problem B. Best Strategy

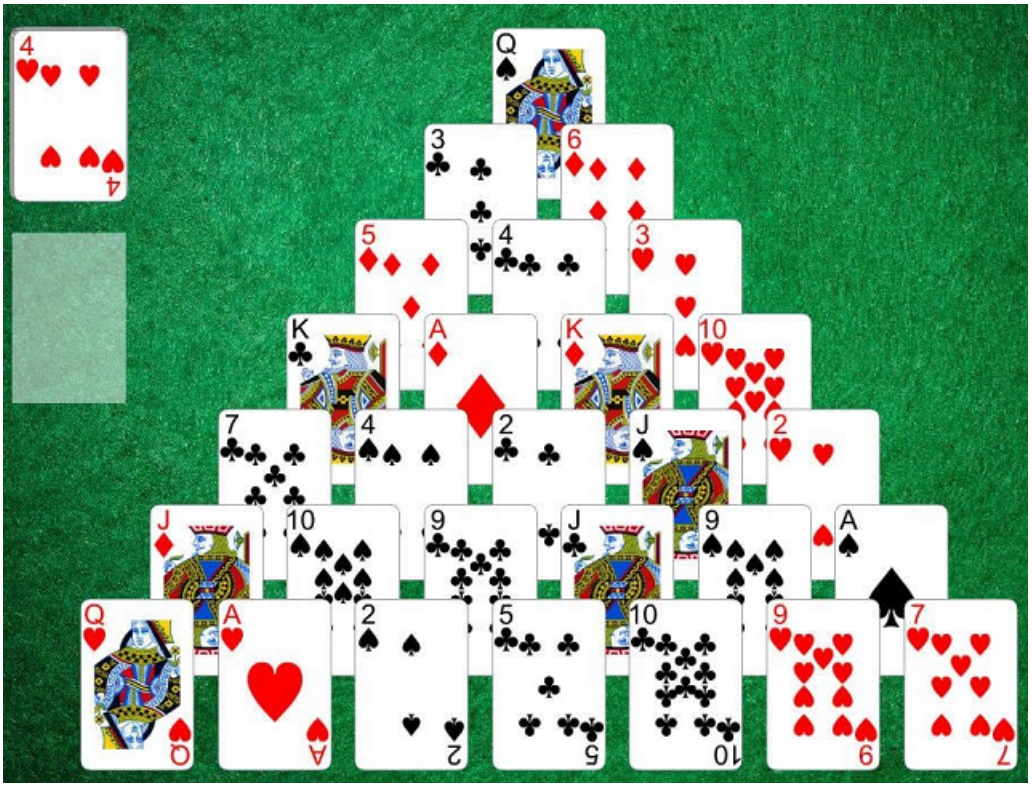
Input file:	`best.in`
Output file:	`best.out`
Time limit:	1 second
Memory limit:	256 mebibytes

Sometimes Yandex employees take part in card game tournaments. In this problem, we describe the rules of one such game.

Pyramid is a solitaire game where the object is to get all the cards from the pyramid to the foundation. The object of the game is to remove pairs of cards that have the sum of their values equal to the most valuable card in the deck. Initially, a pyramid of 28 cards is arranged on the table.

When using the common French deck, Aces value at 1, Jacks value at 11, Queens 12, and Kings 13. So the highest value is 13.

To set up the pyramid, deal one card face up at the top of the playing area, then two cards beneath and partially covering it, then three beneath them, and so on until you have dealt out a row of seven cards, for a total of 28 cards dealt. The picture below shows an example of the pyramid.



The remaining cards are placed in the *Stock* at the side of the table.

To play, pairs of exposed cards can be removed to the Foundation if the sum of their values is 13. Additionally, Kings can be removed immediately to the Foundation. The cards which are being removed must not be covered by the other cards or by each other. For example, when an Ace rests on a Queen, these two cards can not be removed as a pair.

You may draw cards from the Stock one at a time in the order they are placed there. After a card is drawn, you can match it with any exposed card if the sum of their values is 13. If no match is possible, the drawn Stock card is still discarded to the Foundation.

Once the Stock is exhausted and no more pairs can be made, the game ends.

To calculate the score for the game, count the number of remaining cards in the pyramid. The perfect

score is therefore zero, achieved if all cards from the pyramid have been removed to the Foundation.

You are given the order of cards in the pyramid and the Stock. Find the best achievable score (as small as possible).

Input

The first line of input contains 28 cards in the order they are placed to the playing area (from top to bottom row, each row from left to right). The second line contains 24 cards in the order they are placed in the Stock (from the top to the bottom).

You may assume that cards are marked as `A`, `2`, `3`, `4`, `5`, `6`, `7`, `8`, `9`, `T`, `J`, `Q`, `K`, and their values range from 1 to 13 in that order. A card of each type appears exactly four times in total.

Output

Output a single line with the best achievable score.

Example

best.in	best.out
T2Q787K35TK469423QKQ87J496A4 5Q392JT6ATKJ67A83585JA92	6

Note

Rules of the game are based on an article from Wikipedia, the free encyclopedia.