4 Magic number
4 points

Introduction

You collaborate in the sports section of the high school newspaper. This season the high school basketball team is playing very well and is in the first position. The newspaper director has requested you to find out the magic number required to win the season's title.

In certain sports, each game results in a win or a loss, but not a tie. The magic number indicates how close a front-running team is to win a season title. This number represents the total of additional wins by the front-running team or additional losses (or any combination thereof) by the rival team after which it is mathematically impossible for the rival team to capture the title in the remaining games. The formula to calculate the magic number is:

magic number = total number of games - number of wins by a front-running team - number of losses by the 2nd place team + 1

Can you write a program to find out the magic number?

Input

The input consists of three lines:

- The first line has the total number of games in a regular season.

- The second line has the name (in a single word) of the front-running team followed by the numbers of wins and losses during the current season.

- The third line has the name (in a single word) of the second placed team followed by the numbers of wins and losses during the current season.

Output

The output will be a single line reporting the magic number of matches that the front-running team must win to conquer the season's title.

Example

Input

162

Chicago 90 45

Cleveland 88 46

Output

Chicago must win 27 matches