Day 2 Question 1

Scoring Curling

Input file: curl.in

Output file: curl.out

The sport of curling is played in ends. In an end, two teams throw eight rocks each toward a circular target. The centre of the target is called the tee. The team that scores is the team whose rock is closest to the tee. The score for that team is the number of rocks belonging to it that are closer to the tee than any other rock from the opposing team, and no more than six feet from the tee. Rocks within .001 feet of the same distance to the tee are considered to be tied. A rock is not considered to be closer to the tee than a rock with which it is tied. If the nearest rocks for the two teams are tied or both more than six feet from the tee, the end is declared to be a blank end, and there is no score.

Assume that the tee is at at the location whose coordinates are (0,0). The position of each rock is given as coordinate pairs (x,y) where x and y are in feet. For each of several games you are to determine which team wins, and its score.

The Input

The input consists of a line containing an integer n, followed by the information for n ends of curling. For each end, the positions of the eight rocks for team A are given followed by the positions of the eight rocks for team B. Each position is given on two lines, the first being the x coordinate and the second being the y coordinate.

The Output

For each end, write a line containing the name of the team that wins (A or B) followed by a space followed by its score. If no team wins, write BLANK END.

Sample Input

```
1
1
1
2
2
3
3
4
4
5
5
6
6
7
7
8
8
0. 1
```

```
1
0.9
-0.9
8
-8
-7
7
6
5
5
4
4
5
0
0
```

Output for sample Input

Text Segmentation

Input file: text.in

Output file: text.out

In a word processing accident, all the spaces were removed from a file containing lines of English text. Your job is to replace the spaces in the text. Your input consists of two parts: a dictionary, and a number of lines of text with no spaces. The dictionary is preceded by an integer, n < 1000, indicating the number of words in it, followed by the words, one per line. Following the dictionary is another integer, m < 1000, and m lines of text with no spaces. Insert spaces into each line so that it is composed of a sequence of words from the dictionary. If there is more than one way to break the line into words, output the solution with the fewest words (or one of the solutions if there are many). If there is no way to break the line into words, print *** followed by the line with no spaces.

No line will be longer than 100 characters. The input contains only lower case letters. No word in the dictionary exceeds 20 letters.

Sample Input

```
5
the
a
cow
there
re
3
therecow
acowrethe
zyzzy
```

Output for Sample Input

```
there cow
a cow re the
***zyzzy
```

Day 2 Question 3

Derek's Dilemma

Input file: derek.in

Output file: derek.out

There once were two sad people who were named, oddly enough, A and B. They were sad because they were always being talked about, often quite slanderously, in math problems by the callous, faceless mathematical institution. Whenever they would talk to other people, the mean people would say "Hey, I read about you! You're always collecting and losing apples, aren't you?" They could not get jobs, because the mean interviewers would say "Didn't I read that at one point you two were prisoners? Hmmm, this is a dilemma..."

While the author feels deeply for them, unfortunately he lacks any semblance of an imagination and none of the other letters could make it, so he will be using them yet again. However, to prevent the standard misconceptions, please read the disclaimer.

A and B are playing a game. They have n tokens, inscribed with the numbers 1 to n. A takes token 1 and places it in one of two piles. B then takes token 2 and places it in one of the two piles. A does this with token 3, and so on, until the last player places token n in one of the two piles.

The numbers on the tokens in each of the piles are summed up, and A wins if the two totals are relatively prime. (Two numbers are relatively prime if there is no integer greater than 1 which evenly divides both of them) Otherwise, B wins. (Note: an empty pile has total 0, and every integer evenly divides 0)

Your goal is to figure out, if both A and B play perfectly, which one of them will win for a given n.

Note: This question is for the sole purpose of cruelty to participants of the CCC. Any resemblance to real or imagined persons, living or dead, is purely coincidental.

The Input

Several lines containing the number of tokens for different games to be analyzed. Each line consists of a single number n, 1 <= n <= 30, except for the last line, which contains the number 0.

The Output

For each non-zero n, you are to print out who will win the game (A or B) with n tokens, assuming both play as well as possible.

Note that efficiency may be an issue here for large n - your program will not have forever to run.

Sample Input

```
2
5
10
0
```

Sample Output

```
When n=2, B will win.
When n=5, A will win.
When n=10, A will win.
```