

Honey

Jojo likes honey, so he has many bottles that are still full of honey. In his country, there is a regulation stating that one can exchange B empty bottles of honey for 1 new bottle of honey. Now he wonders, how many bottles of honey can he drink if at first he has A full bottles of honey and he always acts optimally in exchanging his empty honey bottle? Help him answer his question.

Format Input

The first line is an integer T which shows the number of test cases.

For each test case, there will be 1 line consisting of 2 integers A and B representing the number of full honey bottles that Jojo had in the beginning, and the number of empty honey bottles needed in exchange for 1 new bottle of honey.

Format Output

For each test case, output 1 line in the form of "Case #X: Y". X is the number of test cases, and Y is the total amount of honey in bottles that Jojo can drink maximally.

Constraints

- $1 \le T \le 100$
- $2 \le A, B \le 10000$

Sample Input 1 (standard input)

2 4 2

3 2

Sample Output 1 (standard output)

Case #1: 7
Case #2: 5

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Note

In the second sample test case, Jojo has 3 bottles of honey in the beginning. After he drinks all of them, he has 3 empty bottles. He exchanges 2 empty bottles into 1 new bottle of honey. Now he has 1 new bottle of honey and 1 empty bottle of honey. He drinks 1 new bottle of honey so now he has drunk a total of 4 bottles of honey and still has 2 empty bottles left. Then, he exchanges 2 empty bottles into 1 new bottle of honey, then drinks it, so he now has drunk a total of 5 bottles of honey and now he has 1 empty bottle left that is not enough to be exchanged again.



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Jojo suka madu, jadi ia memiliki banyak botol yang masih penuh dengan madu. Di negara Jojo, ada peraturan yang menyatakan bahwa seseorang dapat menukarkan B botol madu kosong dengan 1 botol madu baru. Sekarang ia bertanya-tanya, berapa total madu yang dapat ia minum jika pada mulanya ia memiliki A botol madu berisi penuh dan ia selalu bertindak secara optimal dalam menukarkan botol madu kosongnya? Bantu ia menjawab pertanyaannya.

Format Input

Baris pertama adalah sebuah bilangan bulat T yang menunjukkan banyak kasus uji. Untuk setiap kasus uji, akan ada 1 baris input yang terdiri dari 2 bilangan bulat A dan B yang merepresentasikan banyaknya botol madu penuh yang dimiliki Jojo mula-mula, dan banyaknya botol madu kosong yang diperlukan untuk mendapatkan 1 botol madu baru.

Format Output

Untuk setiap kasus uji, outputkan 1 baris dengan format "Case #X: Y". X adalah nomor kasus uji, dan Y adalah jumlah total madu dalam satuan botol yang Jojo dapat minum secara maksimal.

Constraints

- $1 \le T \le 100$
- $2 \le A, B \le 10000$

Sample Input 1 (standard input)

2

4 2

3 2

Sample Output 1 (standard output)

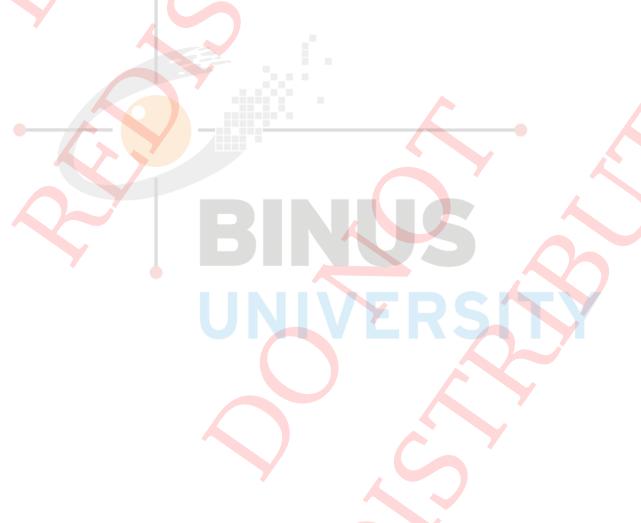
Case #1: 7
Case #2: 5

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Note

Pada sample test case kedua, mula-mula Jojo memiliki 3 botol madu. Setelah ia meminum semuanya, ia memiliki 3 botol kosong. Ia menukarkan 2 botol kosong tersebut menjadi 1 botol madu baru. Sekarang ia memiliki 1 botol madu baru dan 1 botol madu kosong. Ia meminum 1 botol madu baru tersebut sehingga sekarang dia sudah meminum total 4 botol madu dan masih memiliki 2 botol kosong. Kemudian ia menukarkan 2 botol kosong tersebut menjadi 1 botol madu baru, lalu meminumnya, sehingga ia sekarang sudah meminum total 5 botol madu dan sekarang ia memiliki 1 botol kosong yang sudah tidak cukup untuk ditukarkan lagi.



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