



Objective:

- Understanding and finding out the FIFO behavior in different problems.

Task-1

Computing Capital Gain

When a person makes a profit on a purchase and eventual sale of a stock, he or she must pay taxes on the "capital gain", that is, the profit. (A capital loss can be used as a tax deduction.) However, sometimes a person purchases and sells shares of a stock over several transactions, and the capital gain depends on the interpretation of which shares were bought or sold. For example, suppose a person had the following transactions for stock of a certain company:

- bought 1000 shares at \$3 each for \$3000.
- bought 1500 shares at \$2.5 each for \$3750.
- sold 750 shares at \$3.25 each for \$2437.5.
- bought 1000 shares at \$3.20 each for \$3200.
- sold 2750 shares at \$3.75 each for \$10321.5

The total profit is $(2437.50 + 10321.50) - (3000 + 3750 + 3200) = 5509$. However, if a year ended after the third transaction (the first sale), then capital gains tax needed to be paid on the gain so far. But where did the 750 shares come from-- the original 1000 or the later 1500?

The standard way to compute capital gains is on a first-come-first-serve basis. Hence the 750 shares come out of the original 1000 shares, and their original price (their *basis*) is 2250, and so the capital gain was 187.5. If this person then sold another 750 shares the next year without buying any more, then 250 of those shares would be the remaining shares from the original purchase, and the other 500 would come from the 1500 bought in the second purchase. If sold at \$3.50 per share, this would be a capital gain of $(750 * 3.50) - (250 * 3 + 500 * 2.5) = 2625 - 2000 = 625$.

Input and Output

Input will consist of a series of lines; first line contains the number of transactions. Each line will contain 'b' (bought) or 's' (sale) with next integer as number of shares sale/purchase and the next represents the rate of sale/purchase.

Output will consist of a value representing the capital gain.

Sample input

```
5
b 1000 3
b 1500 2.5
s 750 3.25
b 1000 3.2
s 750 3.5
```

Sample output

```
812.5
```

Task-2

Wapda Crisis

Time Limit: 3 Seconds

As we know we are facing power crisis these days in Pakistan (caused by a shortage of rain, ill planning e.g. no big projects for building new hydroelectric power stations/dams). So, at the moment on of the WAPDA electrical engineer came with a contingency scheme to manage and distribute the available power in an unbiased way. The scheme is to divide the country into N regions (Lahore is region number 1, and Tarbela number 13). A number, m , would be picked 'at random', and the power would first be turned off in region 1 (clearly the fairest starting point) and then in every m 'th region after that, wrapping around to 1 after N , and ignoring regions already turned off. For example, if $N = 17$ and $m = 5$, power would be turned off to the regions in the order: 1, 6, 11, 16, 5, 12, 2, 9, 17, 10, 4, 15, 14, 3, 8, 13, 7.

The problem is that it is clearly fairest to turn off Tarbela last (after all, that is where the Electricity headquarters are), so for a given N , the 'random' number m needs to be carefully chosen so that region 13 is the last region selected.

Write a program that will read in the number of regions and then determine the smallest number m that will ensure that Tarbela (region 13) can function while the rest of the country is blacked out.

Input and Output

Input will consist of a series of lines, each line containing the number of regions (N) with $13 \leq N < 100$. The file will be terminated by a line consisting of a single 0.

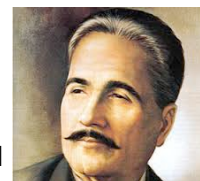
Output will consist of a series of lines, one for each line of the input. Each line will consist of the number m according to the above scheme.

Sample input

17
0

Sample output

7



The Great Allama Muhammad Iqbal

- i. Tu abhi reh guzar mein hai qaid-e-makaam se guzar
Misar(Egypt)-o-hijaaz se guzar, paares(Paris)-o-shaam se guzar

[It means that don't confine yourself to any one particular place, you are in a process/transit of learning and therefore visit different places without desire reward.]

- ii. Jis ka amal hai be-gard, us ki jaza kuch aur hai
Hur-o-khayam se guzar, baadh-o-jaam (wine) se guzar

[One who does deeds without the desire of janat (hur & wine), he will get higher rewards. Although he will also get both the things, but do things without keeping these points in mind.]

- iii. Tera imaam be-huzoor, teri namaaz be-suroor
Aisi namaz se guzar, aise imam se guzar