

2003 Canadian Computing Competition, Stage 2
Day 1, Question 2

Input file: `cards.in`
Output file: `cards.out`
Source file: `n:\cards\cards.____`

Concentration

Stan has a deck of N Concentration Cards. He wants to lay the cards edge-to-edge to form a filled rectangle with minimal perimeter. Each card is a rectangle with dimensions W mm. by H mm.

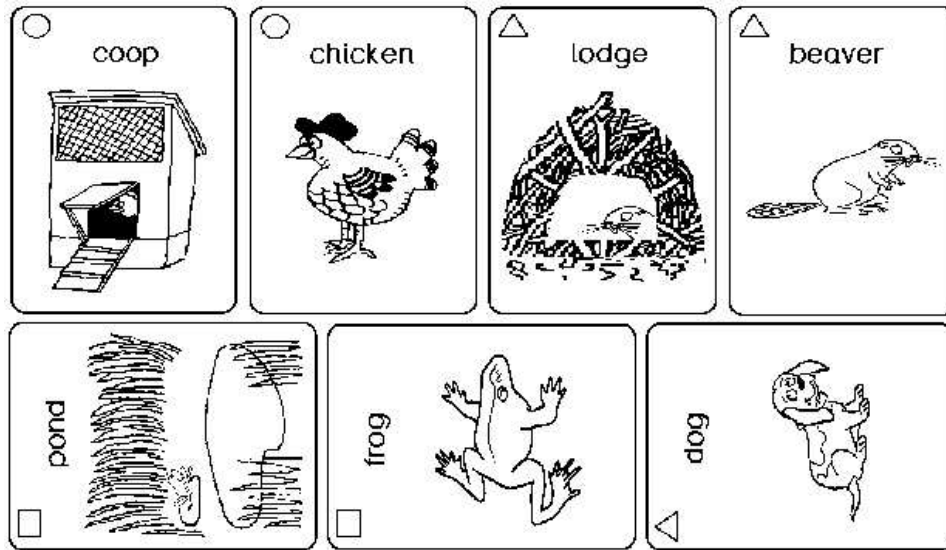


Figure 1: Concentration Cards

Input

The first line of input contains C , the number of test cases. For each case there is an additional line containing N , W , H , each a positive integer not exceeding 1000.

Output

Your program should produce one line of output per case, giving the minimal perimeter.

Sample Input

```
3
3 300 400
4 400 300
7 300 400
```

Sample Output

```
2600
2800
3800
```