1. Card - Discard

Queen Cleopatra has a deck of **52 cards**. She wants to play a card game with **N - 1** of her friends. This card game requires each person to have an equal number of cards, so Cleopatra needs to discard a certain number of cards from her deck so that she can equally distribute the remaining cards amongst her and her friends.

Find the **minimum** number of cards Cleopatra has to discard such that she can play the game.

Note: It doesn't matter which person gets which card. The only thing that matters is that each person should have an equal number of cards.

Input Format:
Only line of input contains one integer ***N*** denoting the number of players (Including Cleopatra)

Output Format:
Print **minimum** number of cards Cleopatra has to discard from the deck.

Constraints:
$2 \leq N \leq 52$

Sample I/O:

Input 1:
9
Output 1:
7

Input 2:
52
Output 2:
0

Input 3:
14
Output 3:
10

2. Smart Choice

There are two problems in a contest.

Problem A is worth 500 points at the start of the contest.
Problem B is worth 1000 points at the start of the contest.

Once the contest starts, after each minute:
Maximum points of Problem A reduce by **2** points.
Maximum points of Problem B reduce by **4** points.

It is known that Professor requires **X** minutes to solve Problem A correctly, and **Y** minutes to solve Problem B correctly.

Find the maximum number of points Professor can score if he optimally decides the order of attempting both the problems.

Input Format:
Only line of input contains two integers **X** and **Y** - the time required to solve problems A and B in minutes respectively.

Output Format:
Output in a single line, the **maximum number of points Professor can score if he optimally decides the order of attempting both the problems**.

Constraints:
$1 \leq X, Y \leq 100$

Sample I/O:

Input 1:
10 20
Output 1:
1360

Input 2:
8 40
Output 2:
1292

Input 3:
15 15
Output 3:
1380

Input 4:
20 10

Output 4:
1400

Explanation:
Test Case 1:
If Professor attempts in the order A→B then he submits Problem A after 10 minutes and Problem B after 30 minutes.
Thus, he gets $500-10 \cdot 2=480$ points for problem A and $1000-30 \cdot 4=880$ points for problem B. Thus, total $480+880=1360$ points for both the problems.

If Professor attempts in the order B→A then he submits Problem B after 20 minutes and Problem A after 30 minutes.
Thus, he gets $1000-20 \cdot 4=920$ points for Problem B and $500-30 \cdot 2=440$ points for Problem A. Thus total $920+440=1360$ points for both the problems.

So, in both cases Professor gets 1360 points in total.

Test Case 2:
If Professor attempts in the order A→B then he submits Problem A after 8 minutes and Problem B after 48 minutes.
Thus, he gets $500-8 \cdot 2=484$ points for problem A and $1000-48 \cdot 4=808$ points for problem B. Thus, total $484+808=1292$ points for both the problems.

If Professor attempts in the order B→A then he submits Problem B after 40 minutes and Problem A after 48 minutes.
Thus, he gets $1000-40 \cdot 4=840$ points for Problem B and $500-48 \cdot 2=404$ points for Problem A. Thus total $840+404=1244$ points for both the problems.

So, Professor will attempt in the order A→B and thus obtain 1292 points.

Test Case 3:
If Professor attempts in the order A→B then he submits Problem A after 15 minutes and Problem B after 30 minutes.
Thus, he gets 500−15·2=470 points for problem A and 1000−30·4=880 points for problem B. Thus, total 470+880=1350 points for both the problems.

If Professor attempts in the order B→A then he submits Problem B after 15 minutes and Problem A after 30 minutes.
Thus, he gets 1000−15·4=940 points for Problem B and 500−30·2=440 points for Problem A. Thus total 940+440=1380 points for both the problems.

So, Professor will attempt in the order B→A and thus obtain 1380 points.

Test Case 4:
If Professor attempts in the order A→B then he submits Problem A after 20 minutes and Problem B after 30 minutes.
Thus, he gets 500−20·2=460 points for problem A and 1000−30·4=880 points for problem B. Thus, total 460+880=1340 points for both the problems.

If Professor attempts in the order B→A then he submits Problem B after 10 minutes and Problem A after 30 minutes.
Thus, he gets 1000−10·4=960 points for Problem B and 500−30·2=440 points for Problem A. Thus total 960+440=1400 points for both the problems.

So, Professor will attempt in the order B→A and thus obtain 1400 points.

3. technicalhub Mania

You're given **N** strings.

Find out how many times the word **technicalhub** can be formed using the letters in the given strings.

Look at the I/O and explanation for more clarity.

Input Format:
First line of input contains an integer **N**.
Each of Next **N** lines contains a string consisting of lower case English alphabets.

Output Format:
Print the output according to description.

Constraints:
$1 \leq N \leq 10^3 1 \leq len\left(each \quad string\right) \leq 10^3$

Sample I/O:

Input 1:
3
mechanical
turbine
hat
Output 1:
1

Input 2:
10
jphkclnpsyvjaacm
pyaiqavqtqvyugm
u

m
fobcrycytnnqiahywr
z
eqtkcxrvxbtvadtaohdp
qhpfptl
yyrzeg
zqpabomcipuflood
Output 2:
2

Input 3:
4
imv
tguktzxejmg
vnfiydpzxoafxi
ouaojrrsmsmuybusyuo
Output 3:
0

Explanation:
For Input1,

here is how you can form only ***1*** **technicalhub**.

- **t** from ha**t** (or from **t**urbine)
- **e** from turbin**e** (or from m**e**chanical)
- **c** from me**c**hanical
- **h** from **h**at (or from mec**h**anical)
- **n** from turbi**n**e (or from mecha**n**ical)
- **i** from mechan**i**cal (or from turb**i**ne)
- **c** from mechani**c**al (Note that you already used first **c** of me**c**hanical in line 3)
- **a** from h**a**t (or from mech**a**nical, or from mechanic**a**l)
- **l** from mechanica**l**
- **h** from mec**h**anical (or from **h**at) (Note that this line and line 4 can be altered)
- **u** from t**u**rbine
- **b** from tur**b**ine

It's important to note that, you **cannot** form one more **technicalhub**, as you don't have another **u** in the given strings which is required to form **hub**.

For Input3,
there is no **c** in any of the given strings, which is required to form **technicalhhub**. So, you cannot form even a single word.