

H P C O D E W A R S X V I I

You meander over to the next event and see a tapestry full of Greek numerals. The event coordinators explain:

The earliest alphabet-related system of numerals used with Greek letters was the set of acrophonic Attic numerals. These numerals operated much like Roman numerals (which derived from this scheme), with: I = 1, Π = 5, Δ = 10, H = 100, X = 1000, M = 10000. Also, 50, 500, 5000, and 50000 were represented by composites of Π and a tiny version of the applicable power of ten.

problem 7
**Greek
Acrophonic
Numerals**
6 points

You must write a program to convert between Greek Acrophonic Numbers and our familiar decimal number system.

For this problem we'll use a numeral scheme that follows the pattern of this ancient Greek system. We'll represent the numerals like this: I = 1, P = 5, D = 10, H = 100, C = 1000, and M = 10000. For values above ten, groups of five are represented by a P followed by another letter. For example, 6 is written PI, 50 is PD, and 477 is HHHHPDDDPPII.

Input

The first line of input will indicate the number of conversions the program must perform. Each line after will contain either a Greek acrophonic number or a decimal number.

```
9
8
50
475
CCPHHDDDDPII
CCCPHHHHPII
PMMCPDDDDDP
5678
PMMPCPHDDDPPI
8642
```

Output

For each input value the program must convert from decimal to Greek acrophonic, or vice-versa.

```
PIII
PD
HHHHPDDDP
2647
3807
61095
PCPHHPDDDPPII
65536
PCCCCPHHDDDDPII
```