

**2013/2014 SOUTHERN CALIFORNIA REGIONAL
ACM INTERNATIONAL COLLEGIATE PROGRAMMING CONTEST**

**Problem 1
Epithets Among Enemies**

The Swamp County Computer User's Group has decided to raise funds by distributing a free mobile app that is supported by advertising. A committee formed from unemployed adolescent programmers has decided to produce a networked game that uses letter tiles to form words on a rectangular grid game board. To distinguish the SCCUG game from the many popular word game alternatives, the dictionary of allowed words will be expanded to include obscene and vulgar terms. Additionally, tile frequencies and letter point values will be altered to reward the use of foul language. The game will be titled "Epithets Among Enemies." The committee is currently immersed in Tosh.0 and South Park archives, researching contemporary English profanity. The results will be applied to tile frequencies and letter points to maximize the offensiveness of game play. While the research is ongoing, your team must code the word scoring engine.

Input to your program has two parts: the letter point values followed by the words to score. The first part contains three lines specifying the point values for the letters A through Z and the "wild card" blank tile in that order. Each line will contain nine integer values in the range 0–99 inclusive separated by whitespace. No input line will exceed 80 columns.

The remaining input consists of two-line pairs: the first line describes the squares (normal or bonus) that the word is played on, and the second line contains the letter tiles themselves. The blank wild card tile is represented in the input by an underscore. Words will not be more than 30 characters long. The last two-line pair will be followed by the end-of-file.

The square description uses dots (".") to indicate normal squares. Bonus squares are marked with a "2" to indicate that the value of the letter played on that square is to be doubled, a "3" to indicate that the values of the letter played on that square is to be tripled, a "d" indicates that the total word score is to be doubled, and a "t" indicates that the total word score is to be tripled. Apply the "2" or "3" bonus only to the corresponding tile. Sum the points in the word, then apply each "d" and "t" bonus to the word point total. For example, one occurrence of "d" multiplies the word value by 2. Two occurrences of "d" multiplies the word value by 4. The presence of a "d" and "t" in the squares covered by a word multiplies the word value by 6, and so on. Final word scores will be non-negative integers less than 10^6 .

For each word, print the final word score on a line by itself beginning in the first column without trailing whitespace.

Your program is not to be concerned with game rules or order of play. Each word will be legal and should be scored independently.

Sample Input

```
5 3 2 1 1 20 6 3 7
2 4 3 2 1 2 4 1 1
2 1 15 4 2 1 2 1 0
....
SCAT
2...
DARN
.....
FIEND
.d..2.3t
COERCI_E
```

Problem 1
Epithets Among Enemies (continued)

Output for the Sample Input

10
9
30
108