



Problem of the Week

Problem E

Red Dog

We can take any word and rearrange all the letters to get another “word”. These new “words” may be nonsensical. For example, you can rearrange the letters in *MATH* to get *MTHA*.

Nalan wants to rearrange all the letters in *REDDOG*. However, she uses the following rules:

- the letters *R*, *E*, and *D* cannot be adjacent to each other and in that order, and
- the letters *D*, *O*, and *G* cannot be adjacent to each other and in that order.

For example, the “words” *DOGRED*, *DDOGRE*, *GDREDO*, and *DREDOG* are examples of unacceptable words in this problem, but *DROEGD* is acceptable.

How many different arrangements of the letters in *REDDOG* can Nalan make if she follows these rules?

