Problem P5   Euler's Gold

Euler's totient function $\varphi(n)$ is defined as the number of positive integers $\leq n$ that are relatively prime to n (i.e., do not share a common factor), where 1 is counted as being relatively prime to all numbers.

Consider $\varphi(15)$. 2 is relatively prime to 15 but 6 is not (since both 6 and 15 have 3 as a common factor). In the following table, 8 entries are relatively prime to 15, so $\varphi(15) = 8$.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Relatively Prime?	Yes	Yes		Yes			Yes	Yes			Yes		Yes	Yes	

Note that if n is a prime number, then $\varphi(n) = n-1$ by the very definition of a prime number. Your task is to compute $\varphi(n)$ for any $1 < n < 1024$.

Input Format

Your program will read from standard input. The input will consist of a single integer n on a line by itself. You can assume that $1 < n < 1024$.

Output Format

Your program will write to standard output a single integer on a line by itself which represents $\varphi(n)$.

Sample Input and Corresponding Sample Output

Sample Input	Sample Output
15	8
7	6
16	8
14	6
10	4