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## Perfect Numbers

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The Greeks began an examination of numerology by classifying all positive integers as either *perfect*, *abundant*, or *deficient*. This classification scheme is based on the factors (even divisors) of the number. If the sum of all of the factors of a number (excluding the number itself) equals the number then it is said to be a “perfect”. For example, the factors of 6 are 1, 2, 3, and 6. Therefore, the number 6 is a perfect number. The total of the factors of 6 (excluding the number itself, in this case 6) is  $1 + 2 + 3 = 6$ . An abundant number is one in which this sum of factors (excluding the number itself) is greater than the number. An example of an abundant number is 12, because the sum of the factors of 12 is greater than 12. ex.  $1 + 2 + 3 + 4 + 6 = 16$  which is greater than 12. All numbers that are neither perfect nor abundant are deficient.



Write a program that prompts the user to enter a positive integer (allow integer values between 1 and 500). The program should at this point display the original number, the factors in that number and whether the number is perfect, abundant, or deficient.

EXAMPLE: (bolded values denote user input)

Please enter a positive integer: **6**  
The factors of 6 are: 1, 2, 3, 6  
The number 6 is perfect

Please enter a positive integer: **12**  
The factors of 12 are: 1, 2, 3, 4, 6, 12  
The number 12 is abundant

Please enter a positive integer: **333**  
The factors of 333 are: 1, 3, 9, 37, 111  
The number 333 is deficient