Friend numbers X84821_en

Two strictly positive natural numbers are considered *friends* if they have the same *abundance index*, and it is not zero.
The abundance index of a natural number is computed as the difference between the sum of all its proper divisors(1) minus the number itself. For instance, number 12 has an abundance index of 4, since the sum of its proper divisors is 1+2+3+4+6 = 16, and 16-12 = 4. If the sum of the divisors is smaller than the number itself (and thus the substraction would be negative) the abundance index is zero. Note that the abundance index of 1 is zero since it has no proper divisors.
Write a function 'abundance' that given a natural number, returns its abundance index.
Write a program that reads a sequence of pairs of natural numbers, and for each pair, prints the abundance index of each number, and whether they are friends or not.
Use the following code, changing it ONLY in the indicated places:

```
#include <iostream>
using namespace std;

/// ADD YOUR FUNCTION HERE

int main() {
   int x,y;
   while (cin >> x >> y) {
        int ax = abundance(x);
        int ay = abundance(y);

        /// ADD CODE HERE
   }
}
```

Exam score: 3.000000 **Automatic part:** 60.000000%

Input

the input is a sequence of pairs of naturals, all strictly positive.

Output

For each pair in the input sequence, the program prints the abundance index of each number, and whether they are friends or not.

Sample input

```
12 4
35 25
104 20
44 66
24 42
18 19
480 504
```

```
54 84
```

Sample output

```
4 0 not friends
0 0 not friends
2 2 friends
```

```
0 12 not friends
12 12 friends
3 0 not friends
552 552 friends
12 56 not friends
```

Observation

(1) Proper divisors of a number n are all its positive divisors excluding n itself.

Problem information

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