PROBLEM H **AMICABLE NUMBERS** **10 POINTS**

The numbers 220 and 284 are called Amicable Numbers because they are not equal, and for each, the sum of its divisors (not counting itself) equals the other number. That is, the sum of the divisors of 220,

1 + 2 + 4 + 5 + 10 + 11 + 20 + 22 + 44 + 55 + 110 equals 284,

and the sum of the divisors of 284,

1 + 2 + 4 + 71 + 142 equals 220.

In this problem, you have to find pairs of amicable numbers in a given range.

Input

Input begins with a single positive integer, N, the number of ranges to evaluate. This is followed by N lines each containing two positive integers, L and U ($0 < L < U < 20000$).

Output

For each input number pair, output a line with the text `Amicable numbers between L and U`, giving values for L and U. Follow that with a line for each distinct amicable pair discovered, giving the pair of numbers, separated with a space. Amicable pairs should be output with the lower of the two numbers displayed first. Pairs should be in ascending order of their lower values. If there are no amicable pairs, display 'None'. Remember, a number cannot form an amicable pair with itself.

Sample Input

```
2
1 100
150 300
```

Output for Sample Input

```
Amicable numbers between 1 and 100
None
Amicable numbers between 150 and 300
220 284
```