CMPUT 274 - Tangible Computing
Morning Problem: N-Sum

Description

An **N-Sum** is the sum of all numbers from $1 - n$, it can be represented by the following formula, $\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$.

One interesting property of N-Sums is that you are able to sum to any number less than or equal to $\frac{n(n+1)}{2}$ using only numbers between $1 - n$.

Your goal in this problem is to output k, the minimum amount of numbers it will take to sum up to m using only numbers between $1 - n$, each at most once. You are also to output the k numbers you chose to sum up to n.

Input

Input will consist of a single line containing two space separated integers, n and m with $(1 \leq n \leq 1,000,000)$ and $(1 \leq m \leq \frac{n(n+1)}{2})$.

Output

The first line of output will contain an integer k, the number of distinct digits you used to sum up to m.

The second line will contain the k space separated integers **from least to greatest**, that sum up to m. If multiple answers are possible, the answer containing the larger numbers will be considered correct. (see sample 2 explanation)

Sample Input 1

```
10 55
```

Sample Output 1

```
10
1 2 3 4 5 6 7 8 9 10
```

Explanation:

The N-Sum from $1 - 10$ is equal to 55, so all 10 digits from $1 - 10$ are printed.

Sample Input 2

```
5 10
```

Sample Output 2

```
3
1 4 5
```

Explanation:

There are two possible answers to these values containing 3 digits each. 2, 3, 5 and 1, 4, 5. The latter contains a larger number, namely 4, so it is therefore the correct answer.