Find all valid combinations of `k` numbers that sum up to `n` such that the following conditions are true:

- Only numbers `1` through `9` are used.
- Each number is used **at most once**.

Return *a list of all possible valid combinations*. The list must not contain the same combination twice, and the combinations may be returned in any order.

Example 1:

```
Input: k = 3, n = 7

Output: [[1,2,4]]

Explanation:

1 + 2 + 4 = 7

There are no other valid combinations.
```

Example 2:

```
Input: k = 3, n = 9

Output: [[1,2,6],[1,3,5],[2,3,4]]

Explanation:

1 + 2 + 6 = 9

1 + 3 + 5 = 9

2 + 3 + 4 = 9

There are no other valid combinations.
```

Example 3:

```
Input: k = 4, n = 1

Output: []

Explanation: There are no valid combinations. [1,2,1] is not valid because 1 is used
twice.
```

Example 4:

```
Input: k = 3, n = 2
```

Output: []

Explanation: There are no valid combinations.

Example 5:

Input: k = 9, n = 45

Output: [[1,2,3,4,5,6,7,8,9]]

Explanation:

1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 = 45

There are no other valid combinations.

Constraints:

- `2 <= k <= 9`
- `1 <= n <= 60`