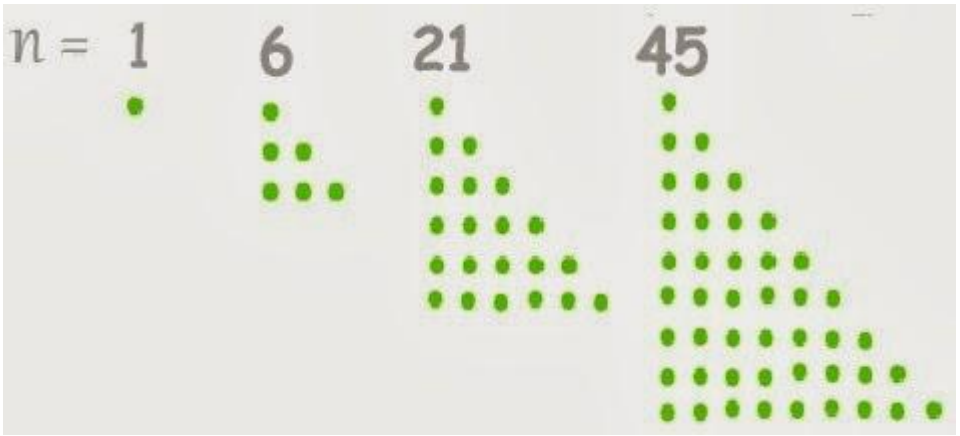
Question-1:

Right Triangle of Dots

The much awaited event at the entertainment industry every year is the "Screen Awards". This year the event is going to be organized on December 25 to honour the Artists for their professional excellence in Cinema. The Organizers of the event, J&R Events, decided to design the logo of the Screen Awards as a digitalized image and display it on the LED panel boards for the show promotions all across the venue. The Event team wanted to border the logo with right triangles which will describe it better.

For this purpose, the Event development team are in the task to find if N dots can make a right triangle or not (all N dots must be used). Given N dots, we can make it look like a Right Triangle (45-45-90 triangle) exactly with N dots. Rearrange the given N dots, like this:



Your task is to help the team write a program using functions to find if N dots can make a right triangle or not.

C Function Specifications:
Use the function name and the argument as:
int find(n):
The function must return 1 if you can make a right triangle using N dots, else return 0.

PythonFunction Specifications:
Use the function name and the argument as:
def find(n):
The function must return 1 if you can make a right triangle using N dots, else return 0.

Input Format:

First line of the input consists of an integer N.

Output Format:
Output "Yes" (without quotes) if you can make a right triangle using N dots, otherwise "No"(without quotes).
Refer sample input and output for formatting specifications.

Sample Input 1:
6
Sample Output 1:
Yes

Sample Input 2:
4
Sample Output 2:
No

Code:

```
def find(n):
    sum = 0
    for i in range(1, n + 1):
        sum += i
        if sum == n:
            return 1
    return 0

n = int(input())
res = find(n)
if res == 1:
    print("Yes")
else:
    print("No")
```

Question-2:

Maximum Element In The Matrix

Write a program to find the maximum element in the matrix.
Note:
Refer to the problem requirements.

Input Format:

The input consists of (m*n+2) integers. The first integer corresponds to m, the number of rows in the matrix and the second integer corresponds to n, the number of columns in the matrix. The remaining integers correspond to the elements in the matrix. The elements are read in rowwise order, first row first, then second row and so on. Assume that the maximum value of m and n is 10.

Output Format:

Refer sample output for details.

Sample Input 1:

Enter the number of rows in the matrix
3

Enter the number of columns in the matrix
2
Enter the elements in the matrix

4 5

6 9

0 3

Sample Output 1:

The maximum element is 9

Code:

```
m = int(input("Enter the number of rows in the matrix\n"))
n = int(input("Enter the number of columns in the matrix\n"))
max_element = -1

print("Enter the elements in the matrix")
for i in range(m):
    for j in range(n):
        element = int(input())
```

```
        if element > max_element:
            max_element = element

print(f"The maximum element is {max_element}")
```

Question-3:

Find the LCM Of Two Numbers using recursion

Code:

```
def hcf(a, b):
    if b == 0:
        return a
    else:
        return hcf(b, a % b)


def lcm(a, b):
    return (a * b) // hcf(a, b)


first = 23
second = 69

print("Lcm of", first, "and", second, "is", lcm(first, second))
```

Question-4:

Find the smallest element in an array using recursion.

Code:

```
def findMinRec(A, n):
    if (n == 1):
        return A[0]
    return min(A[n - 1], findMinRec(A, n - 1))

# Driver Code
if __name__ == '__main__':
    A = [1, 4, 45, 6, -50, 10, 2]
```

```
    n = len(A)
    print(findMinRec(A, n))
```

Question-5:

Sort first half of an array in ascending order and second half in descending order.

Code:

```
arr = [5, 4, 6, 2, 1, 3, 8, 9, 7]
n = len(arr)
mid = n // 2
first_half = sorted(arr[:mid])
second_half = sorted(arr[mid:], reverse=True)
arr = first_half + second_half
print(arr)
```