

```
In [22]: n = int(input("enter number of rows:"))
for i in range(0,n+1):
    for j in range(0,n-i):
        print('5',end=' ')
    print()

enter number of rows:5
5 5 5 5 5
5 5 5
5 5
5
5
```

```
for i in range(n,0,-1):
    for j in range(0,i+1):
        print(j,end=' ')
    print()

enter number of rows:5
0 1 2 3 4 5
0 1 2 3 4
0 1 2 3
0 1 2
0 1
0 1

3)
```

```
while i <= rows:
    j = 1
    while j <= i:
        print((i*2-1),end=' ')
        j = j+1
    i = i + 1
    print()
```

```
1
3 3
5 5 5
7 7 7 7
9 9 9 9 9
```

4)

```
for i in range(1,i):
    for j in range(1,0,-1):
        print(j,end=' ')
    print()
```

```
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1
```

```
In [21]: a = 1
          b = 2
          int_number = b
          for i in range(2,6):
              for j in range(a,b):
                  int_number -= 1
                  print(int_number ,end=" ")
          print()
          a = b
          b += i
          int_number = b
```

```

6)
In [7]: def printPascal(n) :
        for i in range(0, n) :
            for j in range(0, i + 1) :
                print(function(i, j), " ", end = "")
            print()

        def function(n, k) :
            res = 1
            if (k > n - k) :
                k = n - k
            for i in range(0, k) :
                res = res * (n - i)
                res = res // (i + 1)

            return res

        n = 7
        printPascal(n)

```

$$\begin{array}{ccccccc} 1 & 3 & 3 & 1 & & & \\ 1 & 4 & 6 & 4 & 1 & & \\ 1 & 5 & 10 & 10 & 5 & 1 & \\ 1 & 6 & 15 & 20 & 15 & 6 & 1 \end{array}$$

```
for j in range(1, n+1):
    if j<=i:
        print(i,end=' ')
    else:
        print(j,end=" ")
print()
```

Enter the number of rows:5

```
1 2 3 4 5
2 2 3 4 5
3 3 3 4 5
4 4 4 4 5
5 5 5 5 5
```

```
n = int(input("Enter the number of rows:"))
for i in range(1, n+1):
    for j in range(1, i+1):
        print(i*j, end=' ')
    print()
```

Enter the number of rows:8

```
1
2 4
3 6 9
4 8 12 16
5 10 15 20 25
6 12 18 24 30 36
7 14 21 28 35 42 49
8 16 24 32 40 48 64
```

```
In [10]: n = 5
k = 2*n-2
for i in range(n, -1, -1):
    for j in range(k, 0, -1):
        print(end=" ")
    k = k + 1
    for j in range(0, i + 1):
        print(" ** ", end=" ")
    print(" ")

    * * * * *
    * * * * *
    * * * *
    * * *
    * *
    *
```

```
10)

In [11]: n = int(input("Enter the number of rows:"))
          m = 2*n-2
          for i in range(0,n):
              for j in range(0,m):
                  print(end=" ")
              m = m-1
              for j in range(0, i + 1):
                  print(" * ", end=" ")
              print(" ")
```

```
In [12]: n = int(input("Enter the number of rows:"))

#1st pattern

for i in range(0,n):
    for j in range(0,i+1):
        print("x", end=" ")
        print(" ")

print("\n")

#2nd pattern
for i in range(n+1,0,-1):
    for j in range(0,i-1):
        print("x", end=" ")
        print(" ")

Enter the number of rows:7
```

```
def pattern(n):
    for i in range(0,n):
        for j in range(0,i+1):
            print(" * ",end=" ")
        print()
    for i in range(n, 0, -1):
        for j in range(0,i+1):
            print(" * ",end=" ")
        print()
pattern(5)

*
* *
* * *
* * * *
* * * * *
```

```

* * * *
* * * *
* * *
* *

```

13)

```

In [17]: def pattern(n):
          k = 2*n-2
          for i in range(0,n-1):
              for j in range(0,k):
                  print(end=" ")
                  k = k-2
              for i in range(0,i+1):

```

```
k = -1
for i in range(n-1, -1, -1):
    for j in range(k, -1, -1):
        print(end=" ")
    k = k+2
    for j in range(0, i+1):
        print(" * ", end=" ")
    print()

pattern(5)
```

```

      *
     * *
    * * *
   * * * *
  * * * * *
```

```

for i in range(1, n + 1):
    for k in range(1, i):
        print(" ", end = "")
    for j in range(i, n + 1):
        print("**", end = " ")
    print()

# for loop for printing lower half
for i in range(n - 1, 0, -1):
    for k in range(1, i):
        print(" ", end = "")
    for j in range(i, n + 1):
        print("**", end = " ")
    print()

```

```
In [19]: n = int(input("enter number of rows :"))
print("n", n, end="\n")
i = (n // 2) - 1
j = 2
while i != 0:
    while j <= (n - 2):
        print(" * " * i, end=" ")
        print(" " * j, end=" ")
        print(" * " * i, end="\n")
        i = i - 1
        j = j + 2
    enter_number_of_rows :15
```