PATTERNS

PATTERN – 1

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

CODE

```
rows = 6
for i in range(rows):
    for j in range(i):
        print(i, end=' ')
    print('')
```

Pyramid pattern of numbers

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

CODE

```
rows = 5
for i in range(1, rows + 1):
    for j in range(1, i + 1):
        print(j, end=' ')
    print('')
```

Inverted pyramid pattern of numbers

1 1 1 1 1

2 2 2 2

3 3 3

4 4

5

CODE

```
rows = 5
b = 0
for i in range(rows, 0, -1):
    b += 1
    for j in range(1, i + 1):
        print(b, end=' ')
    print('\r')
```

Inverted Pyramid pattern with the same digit

5 5 5 5 5

5 5 5 5

5 5 5

5 5

5

CODE

```
rows = 5
num = rows
for i in range(rows, 0, -1):
    for j in range(0, i):
        print(num, end=' ')
    print("\r")
```

Another inverted half-pyramid pattern with a number

0 1 2 3 4 5

0 1 2 3 4

0 1 2 3

0 1 2

0 1

CODE

```
rows = 5
for i in range(rows, 0, -1):
    for j in range(0, i + 1):
```

```
        print(j, end=' ')
    print("\r")
```

Alternate numbers pattern using a while loop

1

3 3

5 5 5

7 7 7 7

9 9 9 9 9

CODE

```
rows = 5
i = 1
while i <= rows:
    j = 1
    while j <= i:
        print((i * 2 - 1), end=" ")
        j = j + 1
    i = i + 1
    print('')
```

Reverse number pattern

5 5 5 5 5

4 4 4 4

3 3 3

2 2

1

CODE

```
rows = 5
# reverse loop
for i in range(rows, 0, -1):
    num = i
    for j in range(0, i):
        print(num, end=' ')
```

```
    print("\r")
```

Reverse Pyramid of Numbers

1

2 1

3 2 1

4 3 2 1

5 4 3 2 1

CODE

```
rows = 6
for i in range(1, rows):
    for j in range(i, 0, -1):
        print(j, end=' ')
    print("")
```

Another reverse number pattern

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1

CODE

```
rows = 5
for i in range(0, rows + 1):
    for j in range(rows - i, 0, -1):
        print(j, end=' ')
    print()
```

Multiplication table pattern

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 56 64

CODE

```
rows = 8
# rows = int(input("Enter the number of rows "))
for i in range(1, rows + 1):
    for j in range(1, i + 1):
        # multiplication current column and row
        square = i * j
        print(i * j, end='  ')
    print()
```

Simple half pyramid pattern

*

* *

* * *

* * * *

* * * * *

CODE

```
# number of rows
rows = 5
for i in range(0, rows):
    # nested loop for each column
    for j in range(0, i + 1):
        # print star
        print("*", end=' ')
    # new line after each row
    print("\r")
```

Right triangle pyramid of Stars

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

CODE

```
# number of rows
rows = 5
k = 2 * rows - 2
for i in range(0, rows):
    # process each column
    for j in range(0, k):
        # print space in pyramid
        print(end=" ")
    k = k - 2
    for j in range(0, i + 1):
        # display star
        print("* ", end="")
    print("")
```

OR

```
rows = 5
for j in range(1, rows+1):
    print("* " * j)
```

Downward half-Pyramid Pattern of Star

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

CODE

```
rows = 5
for i in range(rows + 1, 0, -1):
    # nested reverse loop
    for j in range(0, i - 1):
        # display star
        print("*", end=' ')
    print(" ")
```

Downward full Pyramid Pattern of star

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

CODE

```
rows = 5
k = 2 * rows - 2
for i in range(rows, -1, -1):
    for j in range(k, 0, -1):
        print(end=" ")
    k = k + 1
    for j in range(0, i + 1):
        print("*", end=" ")
    print("")
```

PATTERN

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

CODE

```
rows = 6
for i in range(rows):
    # nested loop
    for j in range(i):
        # display number
        print(i, end=' ')
    # new line after each row
    print('')
```

half-pyramid pattern of numbers

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

CODE

```
rows = 5
for i in range(1, rows + 1):
    for j in range(1, i + 1):
        print(j, end=' ')
    print('')
```

reverse for loop to print this pattern.

1 1 1 1 1

2 2 2 2

3 3 3

4 4

5

CODE

```
rows = 5
b = 0
# reverse for loop from 5 to 0
```

```
for i in range(rows, 0, -1):
    b += 1
    for j in range(1, i + 1):
        print(b, end=' ')
    print('\r')
```

Inverted Pyramid pattern with the same digit

5 5 5 5 5

5 5 5 5

5 5 5

5 5

5

CODE

```
rows = 5
num = rows
# reverse for loop
for i in range(rows, 0, -1):
    for j in range(0, i):
        print(num, end=' ')
    print("\r")
```

Another inverted half-pyramid pattern with a number

0 1 2 3 4 5

0 1 2 3 4

0 1 2 3

0 1 2

0 1

CODE

```
rows = 5
for i in range(rows, 0, -1):
    for j in range(0, i + 1):
        print(j, end=' ')
    print("\r")
```

Alternate numbers pattern using a while loop

1

3 3

5 5 5

7 7 7 7

9 9 9 9 9

CODE

```
rows = 5
i = 1
while i <= rows:
    j = 1
    while j <= i:
        print((i * 2 - 1), end=" ")
        j = j + 1
    i = i + 1
    print('')
```

Reverse number pattern

5 5 5 5 5

4 4 4 4

3 3 3

2 2

1

CODE

```
rows = 5
# reverse loop
for i in range(rows, 0, -1):
    num = i
    for j in range(0, i):
        print(num, end=' ')
    print("\r")
```

Reverse Pyramid of Numbers

1

2 1

3 2 1

4 3 2 1

5 4 3 2 1

CODE

```
rows = 6
for i in range(1, rows):
    for j in range(i, 0, -1):
        print(j, end=' ')
    print("")
```

Another reverse number pattern

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1

CODE

```
rows = 5
for i in range(0, rows + 1):
    for j in range(rows - i, 0, -1):
        print(j, end=' ')
    print()
```

Print reverse number from 10 to 1

1

3 2

6 5 4

10 9 8 7

CODE

```
start = 1
stop = 2
current_num = stop
for row in range(2, 6):
    for col in range(start, stop):
        current_num -= 1
        print(current_num, end=' ')
    print("")
    start = stop
    stop += row
    current_num = stop
```

Number triangle pattern

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

CODE

```
rows = 6
for i in range(1, rows):
    num = 1
    for j in range(rows, 0, -1):
        if j > i:
            print(" ", end=' ')
        else:
            print(num, end=' ')
            num += 1
    print("")
```

Pattern:

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

1 5 10 10 5 1

1 6 15 20 15 6 1

CODE

```
def print_pascal_triangle(size):
    for i in range(0, size):
        for j in range(0, i + 1):
            print(decide_number(i, j), end=" ")
        print()
def decide_number(n, k):
    num = 1
    if k > n - k:
        k = n - k
    for i in range(0, k):
        num = num * (n - i)
        num = num // (i + 1)
    return num
# set rows
rows = 7
print_pascal_triangle(rows)
```

Run

Multiplication table pattern

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 56 64

CODE

```
rows = 8
# rows = int(input("Enter the number of rows "))
for i in range(1, rows + 1):
    for j in range(1, i + 1):
        # multiplication current column and row
        square = i * j
        print(i * j, end='  ')
    print()
```

Simple half pyramid pattern: –

*

* *

* * *

* * * *

* * * * *

CODE

```
# number of rows
rows = 5
for i in range(0, rows):
    # nested loop for each column
    for j in range(0, i + 1):
        # print star
        print("*", end=' ')
    # new line after each row
    print("\r")
```

Downward half-Pyramid Pattern of Star

* * * * *

* * * *

* * *

* *

*

CODE

```
rows = 5
for i in range(rows + 1, 0, -1):
    # nested reverse loop
    for j in range(0, i - 1):
        # display star
        print("*", end=' ')
    print(" ")
```

Pattern: –

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

CODE

```
rows = 5
k = 2 * rows - 2
for i in range(rows, -1, -1):
    for j in range(k, 0, -1):
        print(end=" ")
    k = k + 1
    for j in range(0, i + 1):
        print("*", end=" ")
    print("")
```