

Ques 21:
n = 5

```

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

```

star = 1 row = 1
space = n * 2 - 3

```

while(row <= n) {
    //star
    int i = 1;
    while(i <= star) {
        cout << " "; i++;
    }
    //space
    int j = 1;
    while(j <= space) {
        cout << " "; j++;
    }
    //star
    int k = 1;
    if(row == n) {
        k = 2;
    }
    //next line
    space -= 2;
    star++; row++;
    cout << "\n";
}

```

Number Pattern

Ques 23:
n = 5

```

      1
     1 1 1
    1 1 1 1 1
   1 1 1 1 1 1 1
  1 1 1 1 1 1 1 1

```

Ques 27:
n = 5

```

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

```

n = 5 star = 1 space = $\frac{n-1}{4}$
row = 1

```

while(row <= n) {
    //space
    int i = 1;
    while(i <= space) {
        cout << " "; i++;
    }
}

```

```

//star
int j = 1, val = 1;
while(j <= star) {
    cout << val;
    if(j < row) val++;
    else val--;
    j++;
}

```

space --
star += 2
row ++
cout << "\n"

space = 4 3 2 star = 5 4 3 2 1

```
while (row <= n) {
```

```
// Space
int i = 1;
while (i <= space) {
    System.out.print("\t");
    i++;
}

// Star
int j = 1;
int val = 1;
while (j <= star) {
    if (j < row) val++;
    else val--;
    j++;
}

// Next line
row++;
space--;
star += 2;
System.out.println();
}
```

$$1\angle = 5$$

val
 $\hookrightarrow \textcircled{0} \neq \textcircled{1} \quad \textcircled{0}$

3 < 2.

$$\begin{array}{l} 3 < = 3 \\ 4 < = 3 \end{array}$$
$$\begin{array}{cccccccc} \rightarrow & - & - & - & 1 & & & \\ \rightarrow & - & - & - & 1 & 2 & 1 & - \\ \rightarrow & - & - & 1 & 2 & 3 & 2 & 1 \\ \rightarrow & - & 1 & 2 & 3 & 4 & 3 & 2 & 1 \\ \rightarrow & 1 & 2 & 3 & 4 & 5 & 4 & 3 & 2 & 1 \end{array}$$

```

1
2 * 2
3 * 3 * 3
4 * 4 * 4 * 4
5 * 5 * 5 * 5
4 * 4 * 4 * 4
3 * 3 * 3
2 * 2
1

```

```

val = 10
space = n - 1
star = 1
0
while (i <= star) {
    if (val == n) {
        cout << "0"
    }
    if (i < row) {
        val++
    }
    else val--
}

```

Ques 33:
n = 10

1 2 3 4 5 6 7 8 9 10