1. Print a 5x5 Square of Asterisks

Problem: Write a program to print a 5x5 grid of * using nested loops.

Solution:

```java
Copy code
public class SquareOfAsterisks {
    public static void main(String[] args) {
        for (int i = 1; i <= 5; i++) {
            for (int j = 1; j <= 5; j++) {
                System.out.print("* ");
            }
            System.out.println();
        }
    }
}
```

Output:

```markdown
Copy code
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

Explanation:
The outer loop runs 5 times to print each row, while the inner loop prints 5 asterisks in each row.

---

2. Print a Right-Angled Triangle of Numbers

Problem: Write a program to print a right-angled triangle of numbers using nested loops.

Solution:

```java
Copy code
public class NumberTriangle {
    public static void main(String[] args) {
        for (int i = 1; i <= 5; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
    }
}
```

Output:

```
Copy code
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

Explanation:
The outer loop controls the rows, while the inner loop controls the number of values printed in each row.

---

3. Multiplication Table

Problem: Write a program to print the multiplication table from 1 to 5 using nested loops.

Solution:

```java
Copy code
public class MultiplicationTable {
    public static void main(String[] args) {
        for (int i = 1; i <= 5; i++) {
            for (int j = 1; j <= 5; j++) {
                System.out.print(i * j + "\t");
            }
            System.out.println();
        }
    }
}
```

Output:

```
Copy code
1       2       3       4       5
2       4       6       8       10
3       6       9       12      15
4       8       12      16      20
5       10      15      20      25
```

Explanation:
The outer loop represents the rows, and the inner loop represents the columns, printing the product of i and j at each position.

---

4. Print an Inverted Right-Angled Triangle

Problem: Write a program to print an inverted right-angled triangle of asterisks using nested loops.

Solution:

```java
java
Copy code
public class InvertedTriangle {
    public static void main(String[] args) {
        for (int i = 5; i >= 1; i--) {
            for (int j = 1; j <= i; j++) {
                System.out.print("* ");
            }
            System.out.println();
        }
    }
}
```

Output:

```markdown
markdown
Copy code
* * * * *
* * * *
* * *
* *
*
```

Explanation:
The outer loop decreases the number of rows from 5 to 1, while the inner loop prints decreasing numbers of * in each row.