

1) Write a Program to print Circle Pattern using Java.

```
public class CirclePattern {
    public static void main(String[] args)
    {
        int r = 6;
        PATT p1 = new PATT();
        p1.print(r);
    }
}

class PATT
{
    void print(int r)
    {
        double dist;

        for (int i = 0; i <= 2 * r; i++) {

            // for vertical movement
            for (int j = 0; j <= 2 * r; j++) {
                dist = Math.sqrt((i - r) * (i - r) +
                                (j - r) * (j - r));

                if (dist > r - 0.5 && dist < r + 0.5)
                {
                    System.out.print("*");
                }
                else
                {
                    System.out.print(" ");
                }
            }

            System.out.print("\n");
        }
    }
}
```

2) Write a Program to print Sine Wave Pattern using Java.

```
public class SignWave {
    public static void main(String[] args) {
        Pattern p1 = new Pattern();
        int w_l = 10, w_h = 6;
        p1.print(w_l, w_h);
    }
}

class Pattern{
    void print(int w_l, int w_h)
    {
        int is = 1, os = 2;
        for (int i = 1; i <= w_h; i++)
        {
            for (int j = 1; j <= w_l; j++)
            {
                for (int k = 1; k <= os; k++)
                {
                    System.out.printf(" ");
                }
                System.out.printf("*");

                for (int k = 1; k <= is; k++)
                    System.out.printf(" ");

                // put any symbol
                System.out.printf("*");

                for (int k = 1; k <= os; k++)
                    System.out.printf(" ");

                System.out.printf(" ");
            }

            os = (i + 1 != w_h) ? 1 : 0;
            is = (i + 1 != w_h) ? 3 : 5;

            System.out.printf("\n");
        }
    }
}
```