Shell Script Patterns

Q1) Write a shell script to print the following patterns using loops.

- Left-aligned increasing triangle
- Left-aligned decreasing triangle
- Repeating numbers (row number)
- Incremental numbers in row
- Centered pyramid

Answer:

```
rows=7

# 1. Left-aligned increasing triangle
echo "Pattern 1:"
for ((i=1; i<=rows; i++))
do
    for ((j=1; j<=i; j++))
    do
        echo -n "* "
    done
    echo
done

# 2. Left-aligned decreasing triangle
echo -e "\nPattern 2:"
for ((i=rows; i>=1; i--))
do
    for ((j=1; j<=i; j++))
    do
        echo -n "* "
    done
    echo
done
```

```bash
# 3. Repeating numbers (row number)
echo -e "\nPattern 3:"
for ((i=1; i<=rows; i++))
do
    for ((j=1; j<=i; j++))
    do
        echo -n "$i "
    done
    echo
done

# 4. Incremental numbers in row
echo -e "\nPattern 4:"
for ((i=1; i<=rows; i++))
do
    for ((j=1; j<=i; j++))
    do
        echo -n "$j "
    done
    echo
done

# 5. Centered Pyramid
echo -e "\nPattern 5:"
for ((i=1; i<=rows; i++))
do
    for ((j=i; j<rows; j++))
    do
        echo -n " "
    done
    for ((k=1; k<=i; k++))
    do
        echo -n "* "
    done
    echo
done
```

Output after Running `./ptrn.sh`

```
Pattern 1:
*
* *
* * *
* * * *
* * * * *
* * * * * *
* * * * * * *
* * * * * * * *


Pattern 2:
* * * * * * *
* * * * * *
* * * * *
* * * *
* * *
* *
*


Pattern 3:
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
6 6 6 6 6 6
7 7 7 7 7 7 7


Pattern 4:
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6
1 2 3 4 5 6 7

Pattern 5:
            *
          * *
        * * *
      * * * *
    * * * * *
  * * * * * *
* * * * * * *
```