C programs to print the following patterns:

1.

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

```c
#include <stdio.h>
void main()
{
    int i, j, rows;
    printf("Enter no. of rows: ");
    scanf("%d",&rows);

    int space=rows-1;
    for(i=1; i<=rows; i++){
        for(j=1;j<=space; j++)
            printf(" ");

        for(j=1; j<=i; j++)
            printf("* ");

        printf("\n");
        space--;
    }
}
```

2.

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

```c
#include <stdio.h>
void main()
{
    int i, j, rows;
    printf("Enter no. of rows: ");
    scanf("%d",&rows);

    int space=rows-1;
    for(i=1; i<=rows; ++i){
        for(j=1;j<=space; j++)
            printf(" ");

        for(j=1; j<=i; j++)
            printf("%d ",j);

        printf("\n");
        space--;
    }
}
```

3. Write a C program to compute the sum of the following series using nested loop

$$\frac{1}{1}+\left(\frac{1}{1}+\frac{1}{2}\right)+\left(\frac{1}{1}+\frac{1}{2}+\frac{1}{3}\right)+\cdots+\left(\frac{1}{1}+\frac{1}{2}+\cdots+\frac{1}{n}\right)$$

```c
#include<stdio.h>
void main()
{
    int i, j, n;
    float sum=0, term;
    printf("Enter n:");
    scanf("%d", &n);

    for ( i = 1 ; i <= n ; i++ ) {
        //compute i-th term = 1/1 + 1/2 + … + 1/i
        term = 0;
        for ( j = 1 ; j <= i ; j++ )
            term+=1.0/j;
        //add i-th term with sum
        sum += term;
    }//i
    printf("%f\n",sum);
}//main
```

<u>Exercise Problems</u>:

1. Write separate C programs to print the following patterns (read number of rows from user):

```
*  *  *  *  *            A                  A
  *  *  *  *            A B                ABC
    *  *  *            A B C              ABCDE
      *  *            A B C D            ABCDEFG
        *            A B C D E          ABCDEFGHI
```

<u>Assignment Problems</u>:

1. Write separate C programs to print the following patterns for n lines (n is input) using nested loop:

```
*****          A          1          1                0
*   *         B B         23         234              01
 * *         C C C        456        56789            010
  **        D D D D       7890       0123456          0101
   *       E E E E E      12345      789012345        01010
```

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