**PROBLEM 1:**

```
runner% cat exam2_1.c
#include <stdio.h>

void main(void)
{
   int a, b;
   while (1) {
      scanf("%i %i", &a, &b);
      if (a < 0 && b < 0) break;
      printf("%3i, %3i: Not yet\n", a, b);
   }
   printf("%3i, %3i: Th-th-th-that's all folks\n",
      a, b);
}
runner% exam2_1
3 6
  3,   6: Not yet
0 3
  0,   3: Not yet
-1 4
 -1,   4: Not yet
3 -4
  3,  -4: Not yet
0 0
  0,   0: Not yet
-1 -2
 -1,  -2: Th-th-th-that's all folks

/* alternative version */
#include <stdio.h>

void main(void)
{
   int a, b;
   scanf("%i %i", &a, &b);
   while (a >= 0 || b >= 0) {
      printf("%3i, %3i: Not yet\n", a, b);
      scanf("%i %i", &a, &b);
   }
   printf("%3i, %3i: Th-th-th-that's all folks\n",
a, b);
}
```

**PROBLEM 2:**

```
runner% cat exam2_2.c
#include <stdio.h>

void chars(int n, char ch);

void main(void)
{
   int n, line;
   scanf("%i", &n);
   chars(1, '*'); chars(1, '\n');
   for (line = 2; line < n; line ++) {
      chars(1, '*'); chars(line-2, ' ');
      chars(1, '*'); chars(1, '\n');
   }
   chars(n, '*'); chars(1, '\n');
}

void chars(int n, char ch)
{
   int i;
   for(i = 0; i < n; i++)
      printf("%c", ch);
}
runner% exam2_2
10
*
**
* *
*  *
*   *
*    *
*     *
*      *
*       *
**********
runner% exam2_2
5
*
**
* *
*  *
*****
```

```
-------------------------------------------
PROBLEM 3:
runner% cat exam2_3.c
#include <stdio.h>

int addup(int n);

void main(void)
{
   int n, sum;
   scanf("%i", &n);
   sum = addup(n);
   printf("Sum of integers up to %i == %i\n",
      n, sum);
}

int addup(int n)
{
   int i, sum = 0;
   for(i = 1; i <= n; i++)
      sum = sum + n;
   return sum;
}
runner% cc -o exam2_3 exam2_3.c
runner% exam2_3
10
Sum of integers up to 10 == 55
runner% exam2_3
4
Sum of integers up to 4 == 10
-------------------------------------------
PROBLEM 4:
runner% cat exam1_4.c
#include <stdio.h>
#include <stdlib.h>
#include <time.h>

int roll(void);

void main(void)
{
   int i, n = 1000;
   int spots[7] = {0, 0, 0, 0, 0, 0, 0};
   srand48((long)time(NULL));
   for (i = 0; i < n; i++)
      spots[roll()]++;
   for (i = 1; i < 7; i++)
      printf("Roll of %i, %4i times, %5.2%%\n",
        i, spots[i], (double)spots[i]/(double)n *
100.0);
}

int roll(void)
{
   return (int)(6.0*drand48() + 1.0);
}
runner% cc -o exam2_4 exam2_4.c
vip% exam2_4
Roll of 1,  175 times, 17.50%
Roll of 2,  168 times, 16.80%
Roll of 3,  166 times, 16.60%
Roll of 4,  166 times, 16.60%
Roll of 5,  165 times, 16.50%
Roll of 6,  160 times, 16.00%
vip% exam2_4
Roll of 1,  177 times, 17.70%
Roll of 2,  181 times, 18.10%
Roll of 3,  156 times, 15.60%
Roll of 4,  168 times, 16.80%
Roll of 5,  157 times, 15.70%
Roll of 6,  161 times, 16.10%
vip% exam2_4
Roll of 1,  145 times, 14.50%
Roll of 2,  176 times, 17.60%
Roll of 3,  190 times, 19.00%
Roll of 4,  165 times, 16.50%
Roll of 5,  164 times, 16.40%
Roll of 6,  160 times, 16.00%
vip%
```