

وال هفتم + امین:

```
#include <stdio.h>
```

```
#include <math.h>
```

```
int main() {
```

```
printf("please enter n = ");
```

```
int x, y, z, n;
```

```
scanf("%d", &n);
```

```
for(x=1; x<n/2; x++) {
```

```
for(y=x; y<n/2; y++) {
```

```
z = n - x - y;
```

```
if((x+y>z) || (x+z>y) || (y+z>x) || (y==z)) {
```

```
printf("%d, %d, %d\n", x, y, z);
```

```
}
```

```
}
```

برای اینکه در برنامه اعداد تکراری چاپ نشود کافیست اعداد را به صورت صعودی

مرتب کنیم و برای اینکه زمان اجرای برنامه کوتاه تر باشد و برنامه بهینه باشد

می توانیم از رابطه زیر استفاده کنیم:

$$\left. \begin{array}{l} x+y+z=n \rightarrow x+y=n-z \\ x+y>z \end{array} \right\} \rightarrow n-z>z \Rightarrow z<n/2$$

The image shows a C++ IDE with a source file named 'Untitled2.c'. The code is as follows:

```
1 #include<stdio.h>
2 #include<math.h>
3 int main()
4 {
5     printf("please enter n= ");
6     int x,y,z,n;
7     scanf("%d",&n);
8     for (x=1;x<n/2;x++){
9         for (y=x;y<n/2;y++){
10             z=n-x-y;
11             if ((x+y>z)&&(x+z>y)&&(y+z>x)&&(y<=z)){
12                 printf("%d,%d,%d\n",x,y,z);
13             }
14         }
15     }
```

Two console windows are open, showing the execution of the program. The first window shows the input `n=7` and the output `2,2,3`. The second window shows the input `n=12` and the output `2,5,5`, `3,4,5`, and `4,4,4`.

Console Window 1:

```
C:\Users\majid\Desktop\HW7\Untitled2.exe
please enter n= 7
2,2,3
-----
Process exited after 8.495 seconds with return value 3
Press any key to continue . . .
```

Console Window 2:

```
C:\Users\majid\Desktop\HW7\Untitled2.exe
please enter n= 12
2,5,5
3,4,5
4,4,4
-----
Process exited after 3.715 seconds with return value 6
Press any key to continue . . .
```

```
#include<stdio.h>

#include<math.h>

int main(){

    printf("please enter n= ");

    int x,y,z,n;

    scanf("%d",&n);

    for (x=1;x<n/2;x++){

        for (y=x;y<n/2;y++){

            z=n-x-y;

            if ((x+y>z)&&(x+z>y)&&(y+z>x)&&(y<=z)){

                printf("%d,%d,%d\n",x,y,z);

            }

        }

    }

}
```