PROGRAMING FUNDAMENTAL

3rd ASSIGNMENT

Session: 1E

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1. If the lengths of the sides of a triangle are denoted by a, b, and c, then area of triangle is given by

$$\text{area} = \sqrt{s(s-a)(s-b)(s-c)}$$

where

$$S = (a + b + c) / 2$$

Write a function to calculate 'area' of a triangle according to above scenario. The prototype of this function is double area (double a, double b, double c);

Program:

```
#include<iostream>
#include<conio.h>
#include<math.h>
using namespace std;
double area (double a, double b, double c);
int main ()
{
    double a, b, c;
    cout<<"\t\t Area of a Triangle \n";
    cout<<endl;
    cout<<"Enter the lengths of the sides 'a' = ";
    cin>>a;
    cout<<"Enter the lengths of the sides 'b' = ";
    cin>>b;
    cout<<"Enter the lengths of the sides 'c' = ";
    cin>>c;
    cout<<endl<<endl<<endl;
```

```
    cout<<"Area of Triangle = "<<area (a, b, c) <<" (sq. unit)";
    getch ();
    return 0;
}
double area (double s1, double s2, double s3)
{
    double s, ans;
    s=(s1+s2+s3)/2.0;
    ans=sqrt(s*(s-s1) * (s-s2) * (s-s3));
    return ans;
}
```

Output console:1

```
                Area of a Triangle

Enter the lengths of the sides 'a' = 6
Enter the lengths of the sides 'b' = 7
Enter the lengths of the sides 'c' = 8


Area of Triangle = 20.3332 (sq unit)
```

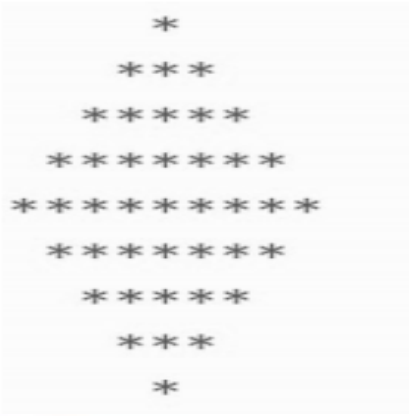
Output console:2

```
                Area of a Triangle

Enter the lengths of the sides 'a' = 25
Enter the lengths of the sides 'b' = 28
Enter the lengths of the sides 'c' = 50


Area of Triangle = 219.334 (sq unit)
```

2. **Write a function to draw following:**



Program:

```
#include<iostream>
#include<conio.h>
#include<math.h>
using namespace std;
void daimand_upper (void);
void daimand_lower (void);
int main ()
{
	daimand_upper ();
	daimand_lower ();
	getch ();
	return 0;
}
void daimand_upper(void)
{
	int v=1;
	for (int j=1; j<=5; j++)
	{
		for (int k=4; k>=j; k--)
		{
			cout<<" ";
		}
		for (int l=1; l<=v; l++)
		{
			cout<<"*";
		}
		cout<<endl;
		v+=2;
	}

}
void daimand_lower(void)
{
	int v=7;
	for (int j=1; j<=4; j++)
	{
		for (int k=1; k<=j; k++)
		{
			cout<<" ";
```

```
                }
                for (int l=1; l<=v; l++)
                {
                        cout<<"*";
                }
                cout<<endl;
                v-=2;
        }

}
```

Output console: