1) Write a program that draws the coordinate system and some geometric shapes on the console screen as described below.

Ask the user to select one of the following shapes:

1. Line

2. Rectangle

3. Triangle

4. Parabola

5. Circle

Line -> If the user selects to draw a line, ask for the coefficients ***a*** and ***b*** that describe the line on the coordinate system such that $y = ax + b$.

Triangle -> If the user selects to draw a triangle, ask for the coordinates of the three vertices vertex 1 (***a***, ***b***), vertex 2 (***c***, ***d***), and vertex 3 (***e***, ***f***) that describe the triangle.

Rectangle -> If the user selects to draw a rectangle, ask for the coordinates of the three vertices vertex 1 (***a***, ***b***), vertex 2 (***c***, ***d***), and vertex 3 (***e***, ***f***) that describe the rectangle. Vertex 2 and vertex 3 are in the neighborhood of vertex 1, and vertex 4 is in the opposite of vertex 1, i.e. the first diagonal is between vertex 1 and vertex 4, and the second one is between vertex 2 and vertex 3. You will the coordinates of vertex 4 using the information for other vertices. Also, you will check whether the points given construct a rectangle; if not, you will notice the user and will not the the rectangle.

Parabola -> Similarly, for the parabola, ask for the coefficients ***a***, ***b***, ***c*** to draw the parabola for the equation $y = ax^2 + bx + c$.

Circle -> Finally, for the circle, ask for the radius (***r***) and the center (***a***, ***b***) to define the circle equation $(x - a)^2 + (y - b)^2 = r^2$.

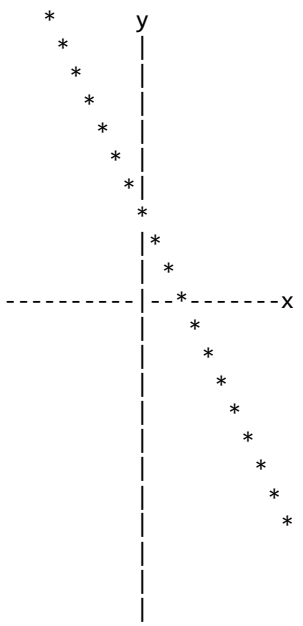
After getting required parameters, draw the coordinate system on the console screen using the characters **–** and **|**. Draw the geometric shape using the character *****.

Both x and y values in the coordinate system should range at least in [-10, 10]. You may draw a larger coordinate system as it will look clearer. However, make sure that your coordinate system fits in the console screen.

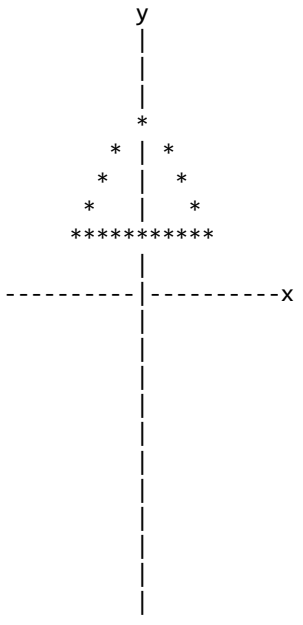
Sample run of the program is as follows:

```
Which shape would you like to draw?
1. Line
2. Triangle
3. Rectangle
4. Parabola
5. Circle
6.Exit
1
```

```
Line formula is y = ax + b
Please enter the coefficients a and b:-1 3
```

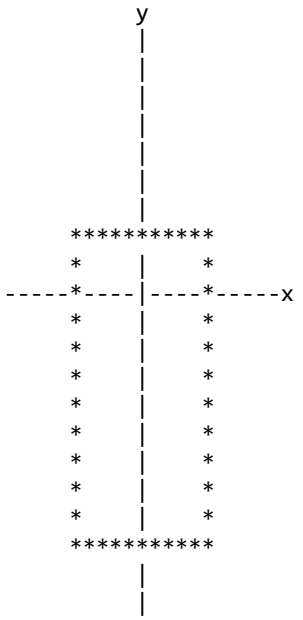



```
Which shape would you like to draw?
1. Line
2. Triangle
3. Rectangle
4. Parabola
5. Circle
6.Exit
2

For triangle, we need the coordinates of the points for three vertices.
Please enter the coordinates of 3 vertices a, b, c, d, e, f:-5 3 0 6 5 3
```

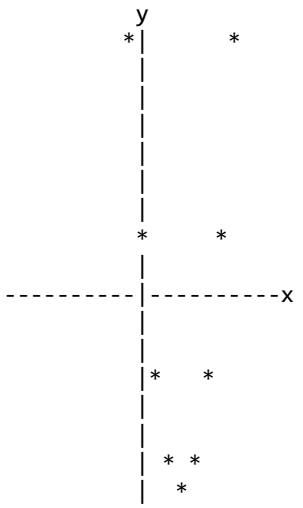



```
Which shape would you like to draw?
```

```
1. Line
2. Triangle
3. Rectangle
4. Parabola
5. Circle
6.Exit
3

For rectangle, we need the coordinates of the points for three vertices.
Please enter the coordinates of 3 vertices a, b, c, d, e, f:-5 3 5 3 -5 9
```

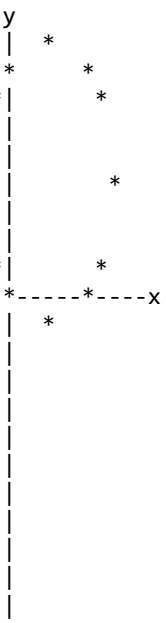


```
Which shape would you like to draw?
1. Line
2. Triangle
3. Rectangle
4. Parabola
5. Circle
6.Exit
4

Parabola formula is y = ax^2 + bx + c
Please enter the coefficients a, b and c:1 -6 2
```



Which shape would you like to draw?
1. Line
2. Triangle
3. Rectangle
4. Parabola
5. Circle
6.Exit
5

Circle formula is (x-a)^2 + (y-b)^2 = r^2
Please enter the coordinates of the center (a,b) and the radius:3 4 5



Which shape would you like to draw?
1. Line
2. Triangle
3. Rectangle
4. Parabola
5. Circle
6.Exit
6