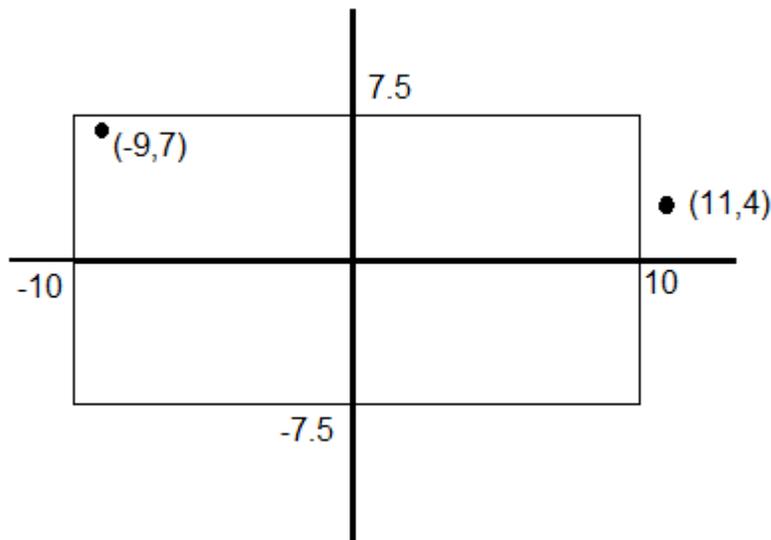


Geometry: point in a rectangle?

Problem Description:

Write a program that prompts the user to enter a point (x, y) and checks whether the point is within the rectangle centered at $(0, 0)$ with width 20 and height 15. For example, $(-9, 7)$ is inside the rectangle and $(11, 4)$ is outside the rectangle, as shown in the Figure.

If the point is exactly on the border of the rectangle, make a special output for this scenario. For instance, the point $(0, 7.5)$ should return that the point is on the border of the rectangle. So, we have three potential outputs: The point is within the rectangle, the point is not within the rectangle, and the point is on one or more of the borders of the rectangle.



Hint: A point is in the rectangle if its horizontal distance to $(0, 0)$ is less than $20 / 2 = 10$ and its vertical distance to $(0, 0)$ is less than $15 / 2.0 = 7.5$. Be aware of the difficulties encountered with floating-point arithmetic: It might be best to hardcode these values to be sure you have an exact representation.

Hint: Work with double values/variables. That is, the user should be able to enter points with either integer values or floating point values.

Hint: Gather input from the command line using a Scanner object.

Hint: The above graph is simply for demonstration. You do not have to work with plotting graphics for this program.

Hint: I'll consider style in your solution. Therefore, name variables, classes, methods, and constants properly. Include a header comment. Finally, use consistent indents throughout the solution. *Bad style may cost you points.*

Here are sample runs of the program:

Sample 1:

```
Enter a point with two coordinates: 0 0  
Point (0.0, 0.0) is in the rectangle.
```

Sample 2:

```
Enter a point with two coordinates: 11 11  
Point (11.0, 11.0) is not in the rectangle.
```

Sample 3:

```
Enter a point with two coordinates: 10 3  
Point (10.0, 3.0) is on the border of the rectangle.
```