# Lab 3: Math Using If

Create a program that gives the user the option of performing one of several math problems.

Start out by printing a menu, and receiving the user's choice. Option 1 indicates the even/odd problem. Option 2 means the quadrant problem. And option 3 means the quadratic equation problem. On any other number, the program should apologize and exit without an arcane error message.

- **Even/odd:** Get an integer from the user. State whether this number is even or odd.

- **Quadrant:** Get two decimal numbers from the user, representing x and y coordinates. Output which quadrant this point is located in, according to the diagram shown here.
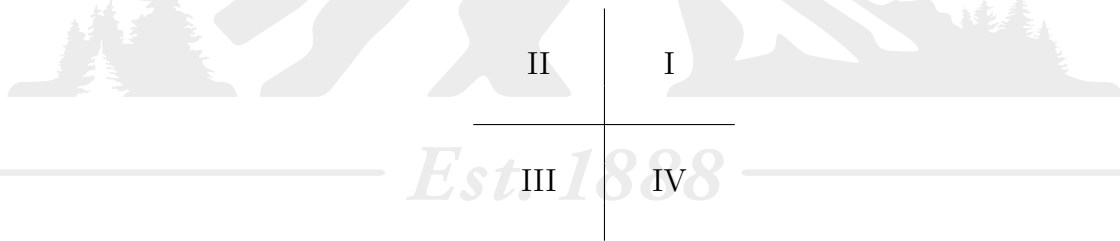
If either x or y is 0, the point is not any any quadrant. You must print out if the point is on the x-axis (when $y = 0$), on the y-axis (when $x = 0$), or on the origin ($x = y = 0$).

- **Quadratic:** Get three decimal numbers from the user, which we will call a, b, and c. Solve for x in the quadratic equation $ax^2 + bx + c = 0$. This can be done with the formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Usually, there will be 2 valid answers for x; you must state them both. However, when $(b^2 - 4ac)$ is 0, there is only one correct answer. You must state it only once, not twice. And if $(b^2 - 4ac)$ is negative, there is no real solution. Inform the user of the problem, and exit without trying to solve it.

Here's an example of how it might look:

```
1. Even/Odd Detector
2. Quadrant Finder
3. Quadratic Solver
What is your selection: 3

Quadratic Solver
Please enter a value for a: 2
For b: 7
And for c: -4
The polynomial 2.0x^2 + 7.0x + -4.0 has two real roots: -4.0 and 0.5.
```

The name of your class will be `IfMath`.