

Math Tutor:

This project was fairly simple and it was fun making it. However it does not use decimals so you have to type your answers without all the decimals.

```
1 package Mastery;
2
3 import java.util.Scanner;
4
5 public class MathTutor {
6
7     public static void main(String[] args) {
8         Scanner input = new Scanner(System.in);
9         int firstnum = (int) (6 * Math.random() + 1), secondnum = (int) (6 * Math.random() + 1),
10         operator = (int) (4 * Math.random() + 1), guess = 0, answer = 0;
11
12         if (operator == 1){
13             System.out.print("What is " + firstnum + " + " + secondnum + "? ");
14             answer = firstnum + secondnum;
15             guess = input.nextInt();
16         }
17         if (operator == 2){
18             System.out.print("What is " + firstnum + " - " + secondnum + "? ");
19             answer = firstnum - secondnum;
20             guess = input.nextInt();
21         }
22         if (operator == 3){
23             System.out.print("What is " + firstnum + " * " + secondnum + "? ");
24             answer = firstnum * secondnum;
25             guess = input.nextInt();
26         }
27         if (operator == 4){
28             System.out.print("(Without decimals) " + "What is " + firstnum + " / " + secondnum + "? ");
29             answer = firstnum / secondnum;
30             guess = input.nextInt();
31         }
32         if (answer == guess) {
33             System.out.print("Correct!");
34         }
35         else {
36             System.out.print("Wrong. The correct answer is: " + answer);
37         }
38     }
39 }
40 }
```

Guessing Game:

This was a surprisingly easy project however it was one of the only ones where I got errors.

```
package Mastery;

import java.util.Scanner;

public class GuessingGame {

    public static void main(String[] args) {

        int secretnum = (int) (20 * Math.random() + 1);
        Scanner input = new Scanner(System.in);

        System.out.print("Enter a number between 1 and 20: ");
        int guess = input.nextInt();

        System.out.println("Computer's Number: " + secretnum);
        System.out.println("Player's Number: " + guess);

        if (guess == secretnum) {
            System.out.println("You guessed the right number!");
        }

        else {
            System.out.println("Better luck next time.");
        }

    }

}
```

Quadratic Equation:

It was hard for my mind to wrap my mind around the quadratic equation; however once I've been given the formula, it was smooth sailing from there.

```
1 package Mastery;
2
3 import java.util.Scanner;
4
5 public class QuadraticEquation {
6
7     public static void main(String[] args) {
8         Scanner input = new Scanner(System.in);
9
10        System.out.print("Enter value for a: ");
11        double a = input.nextInt();
12
13        System.out.print("Enter value for b: ");
14        double b = input.nextInt();
15
16        System.out.print("Enter value for c: ");
17        double c = input.nextInt();
18
19        double root1 = (-b + Math.sqrt(Math.pow(b, 2) - (4 * a * c)))/(2*a), root2 = (-b + Math.sqrt(Math.pow(b, 2) + (4 * a * c)))/(2*a);
20
21        System.out.println("The roots are " + root1 + " and " + root2);
22    }
23
24 }
25
```