public class P4Calculator {

    public static void main(String[] args) {
        // a. ((4-2)-3)+(1-(2-3))
        System.out.println("a: "+ (((4-2)-3)+(1-(2-3))));

        // b. 2/5. Output a decimal result
        System.out.println("b: "+ 2/5.);

        // c. the remainder of 9/10
        System.out.println("c: "+ (9 % 10));

        // d. Determine the whole number (integer) portion of the quotient 45/10
        System.out.println("d: "+ (45/10));

        // e. Determine the whole number (integer) portion of the quotient 14.3/4.5 (use cast)
        System.out.println("e: "+ (int) (14.3/4.5));

        // f. Evaluate the expression "10==99"
        System.out.println("f: "+ (10==99));

        // g. Evaluate the expression "10!=99"
        System.out.println("g: "+ (10!=99));

        // h. 300/(11^2) : use Math.pow
        System.out.println("h: "+ (300/Math.pow(11, 2)));

        // i. square root of |sin(2)|
        System.out.println("i: "+ Math.sqrt(Math.abs(Math.sin(2))));

        // j. e^4
        System.out.println("j: "+ Math.exp(4));

        // k. Generate a random number in the range of 1 to 10
        System.out.println("k: "+ (Math.random()*(10-1)+1));

        // l. Generate a random integer in the range of 1 to 6
        System.out.println("l: "+ ( (int)(Math.random()*6) + 1 ));
    }

/************************ Solution ******************
a: 1
b: 0.4
c: 9
d: 4
e: 3
f: false
g: true
h: 2.479338842975207
i: 0.9535708819095106
j: 54.598150033144236
k: 4.03149666926847  Note: Any value between 1-10
l: 1                  Note: Any integer between 1-6
*****************************************************/
import cs1.Keyboard;
import java.text.DecimalFormat;

public class P4Triangle {
    public static void main(String[] args) {
        double a, b, c, s, area;
        System.out.print("Enter the lengths of the sides of a triangle: ");
        a = Keyboard.readDouble();
        b = Keyboard.readDouble();
        c = Keyboard.readDouble();
        s = (a + b + c) / 2;
        area = Math.sqrt(s * (s - a) * (s - b) * (s - c));

        // Round the output to three decimal places
        DecimalFormat fmt = new DecimalFormat("0.###");
        System.out.println("The triangle’s area: " + fmt.format(area));

        // Or simply output without formatting
        // System.out.println("The Triangle’s area: " + area);
    }
}

Enter the lengths of the sides of a triangle: 2 3 5
The triangle’s area: 0

Enter the lengths of the sides of a triangle: 2 3 5
The triangle’s area: 0
import cs1.Keyboard;
import java.text.DecimalFormat;

public class P4Quadrants {
    public static void main(String[] args) {
        int quadrant;
        double x, y, distance;

        System.out.print("Enter x coordinate: ");
        x = Keyboard.readDouble();
        System.out.print("Enter y coordinate: ");
        y = Keyboard.readDouble();

        // Identify the quadrant and calculate the distance from the origin
        // if necessary
        if (x > 0) {
            distance = Math.sqrt(Math.pow(x, 2) + Math.pow(y, 2));
            System.out.println("Distance from the origin is "+ distance);
            if (y > 0)
                quadrant = 1;
            else
                quadrant = 4;
        } else
        if (y > 0)
            quadrant = 2;
        else
            quadrant = 3;
        System.out.println("The point is in quadrant "+ quadrant);
    }
}

/****************************************** Solutions **********************/
Enter x coordinate: -1
Enter y coordinate: 2
The point is in quadrant 2

Enter x coordinate: 3
Enter y coordinate: -4
Distance from the origin is 5.0
The point is in quadrant 4

Enter x coordinate: 0
Enter y coordinate: 0
The point is in quadrant 3 Note: can be any quadrants
******************************************/
import cs1.Keyboard;

public class P4GuessingGame {
    public static void main(String[] args) {
        int number, guess_num, count;
        int another = 1;
        
        while (another == 1) {
            // pick a random number between 1 and 100
            number = (int)(Math.random() * 100) + 1;
            count = 0;
            guess_num = -1;  // any value other than 0 is fine!
            // let users input their guess number repeatedly until number is
            // guessed correctly or enter "0" to quit
            while (guess_num != number && guess_num != 0) {
                System.out.print("Enter the number you guess (0 to quit): ");
                guess_num = Keyboard.readInt();
                count++;
                // if input is 0, quit the loop
                if (guess_num != 0) {
                    // test user input number
                    if (guess_num > number)
                        System.out.println("Your guess is high.");
                    else
                        if (guess_num < number)
                            System.out.println("Your guess is low.");
                        else
                            System.out.println("Your guess is correct.");
                    System.out.println("The number of your guesses is "+count);
                }
            }
            // check to see if the user want to play another game
            System.out.print("Play another game (1: yes; 0: no)? ");
            another = Keyboard.readInt();
        }
    }
}

/******************** Sample Solutions *********************/
Enter the number you guess (0 to quit): 50
Your guess is high.
Enter the number you guess (0 to quit): 25
Your guess is high.
Enter the number you guess (0 to quit): 12
Your guess is low.
Enter the number you guess (0 to quit): 0

Play another game (1: yes; 0: no)? 1
Enter the number you guess (0 to quit): 50
Your guess is low.
Enter the number you guess (0 to quit): 75
Your guess is high.
Enter the number you guess (0 to quit): 0

Play another game (1: yes; 0: no)? 0
/******************** Sample Solutions *********************/