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HW01 – answers

AddTwo:

```
/*  
 * Adds two given integers and prints the result in a fancy way.  
 */  
// class declaration  
public class AddTwo {  
    // main(string[]) - the entry point of a Java program.  
    // args - args contains the supplied command-line  
    // arguments as an array of String objects.  
    public static void main(String[] args){  
        // a,b - the first and the second user-inputs' values.  
        // each converted from string to int.  
        int a = Integer.parseInt(args[0]);  
        int b = Integer.parseInt(args[1]);  
        // printing the results exactly as the PDF states.  
        System.out.println(a + " + " + b + " = " + (a + b));  
    }  
}
```

Coins:

```
/*
 * Write a program that gets a quantity of cents as a command-line
 * argument.
 * The program prints how to represent this quantity using as many
 * quarters as possible, plus the remainder in cents.
 */
// class declaration
public class Coins {
    // main(string[]) - the entry point of a Java program.
    // args - args contains the supplied command-line
    // arguments as an array of String objects.
    public static void main(String[] args){
        // quarters,cents - the first and the second user-inputs'
        // values.
        // each converted from string to int.
        // quarters - 25 cents.
        // cents - coins left after changing each 25 coins into
        // quarters.
        int quarters = Integer.parseInt(args[0]) / 25;
        int cents = Integer.parseInt(args[0]) % 25;
        // printing the results exactly as the PDF states.
        System.out.println("Use " + quarters + " quarters and " +
        cents + " cents");
    }
}
```

Linear Equation Solver:

```
/*
 * Solves linear equations of the form  $a \cdot x + b = c$ .
 * The program gets a, b, and c as command-line arguments,
 * computes x, and prints the result.
 * Treats the three arguments as well as the computed value as
double values
 */
// class declaration
public class LinearEq {
    // main(string[]) - the entry point of a Java program.
    // args - args contains the supplied command-line
    // arguments as an array of String objects.
    public static void main(String[] args){
        // a,b,c - the first, the second and the third user-inputs'
values.
        // each converted from string to double.
        double a = Double.parseDouble(args[0]);
        double b = Double.parseDouble(args[1]);
        double c = Double.parseDouble(args[2]);
        // reversing the linear equation of the form  $a \cdot x + b = c$  to
        // calculate the value of x.
        double x = (c - b) / a;
        // printing the results exactly as the PDF states.
        System.out.println(a + " * x + " + b + " = " + c);
        System.out.println("x = " + x);
    }
}
```

Triangle:

```
/*
 * Three sides can form a triangle if the sum of the lengths of any
 * two sides is greater than the length of the remaining side.
 * This is known as the Triangle Inequality Theorem.
 * Write a program that tests if three given integers form a
 * triangle.
 */
// class declaration
public class Triangle {
    // main(string[]) - the entry point of a Java program.
    // args - args contains the supplied command-line
    // arguments as an array of String objects.
    public static void main(String[] args){
        // finding the max, min and middle user-inputs' values.
        // each converted from string to double.
        // each symbolise a length of a line.
        int max =
Math.max(Math.max(Integer.parseInt(args[0]),Integer.parseInt(args[1]
)),Integer.parseInt(args[2]));
        int min =
Math.min(Math.min(Integer.parseInt(args[0]),Integer.parseInt(args[1]
)),Integer.parseInt(args[2]));
        int mid = Integer.parseInt(args[0]) +
Integer.parseInt(args[1]) + Integer.parseInt(args[2]) - max - min;
        // checking if the 3 lines can form a triangle according to
        // Triangle Inequality Theorem.
        boolean isTriangle = min + mid > max;
        // printing the results exactly as the PDF states.
        System.out.println(Integer.parseInt(args[0]) + ", " +
Integer.parseInt(args[1]) + ", " + Integer.parseInt(args[2]) + ": "
+ isTriangle);
    }
}
```

Gen3:

```
/*
 * Generates three random integers, each in a given range [a,b),
 * prints them, and then prints the minimal number that was
 * generated.
 */
// class declaration
public class GenThree {
    // main(string[]) - the entry point of a Java program.
    // args - args contains the supplied command-line
    // arguments as an array of String objects.
    public static void main(String[] args){
        // saving the user-inputs' values while converting them from
        // strings to integers.
        int a = Integer.parseInt(args[0]);
        int b = Integer.parseInt(args[1]);
        // finding the min and max user-inputs' numbers and save
        // them as
        int max = Math.max(a, b);
        int min = Math.min(a, b);
        // generate 3 random numbers between min and max using for-
        // Loop and Math.random().
        int gen1st = (int)((Math.random() * (max - min)) + min);
        int gen2nd = (int)((Math.random() * (max - min)) + min);
        int gen3rd = (int)((Math.random() * (max - min)) + min);
        // printing the results exactly as the PDF states.
        System.out.println(gen1st);
        System.out.println(gen2nd);
        System.out.println(gen3rd);
        // finding the min generated number out of 3.
        int minGen = Math.min(Math.min(gen1st, gen2nd), gen3rd);
        // printing the results exactly as the PDF states.
        System.out.println("The minimal generated number was " +
minGen);
    }
}
```