Q1: PasswordChecker [10 points]

import java.util.Scanner;  
  
public class PasswordChecker {  
 public static void main(String[] args) {  
 Scanner scanner = new Scanner(System.*in*);  
 int leastLength = 8;  
 boolean hasUppercase;  
 boolean hasLowercase;  
 boolean hasDigit;  
 String password;  
  
 System.*out*.println("""  
 Please enter a password that meets the following criteria:  
 • Must have at least 8 characters  
 • Must have at least one uppercase letter, one lowercase letter, and one digit""");  
 System.*out*.print("Please enter a password: ");  
 while (true) {  
 password = scanner.nextLine();  
 hasUppercase = password.matches(".\*[A-Z].\*");  
 hasLowercase = password.matches(".\*[a-z].\*");  
 hasDigit = password.matches(".\*\\d.\*");  
  
 if (password.length() >= leastLength && hasUppercase && hasLowercase && hasDigit) {  
 break;  
 }  
 System.*out*.print("Please enter a password again: ");  
 }  
 System.*out*.println("The password is okay!");  
  
 scanner.close();  
 }  
}

Q2: ComputeTuition [10 points]

public class ComputeTuition {  
 public static void main(String[] args) {  
 double tuition = 10000;  
 double interest = 0.05;  
 double total = 0;  
 int year = 10;  
 int[] period = {11, 14};  
  
 for (int i = 2; i <= Math.*max*(year, period[1]); i++) {  
 tuition += tuition \* interest;  
 if (i == year) System.*out*.println("Tuition for the tenth year: $" + tuition);  
 if (i >= period[0]) total += tuition;  
 if (i == period[1]) System.*out*.println("Total cost of four years' worth of tuition (11th to 14th year): $" + total);  
 }  
 /\*  
 System.out.println(10000\*Math.pow(1.05, 9));  
 System.out.println(10000\*(Math.pow(1.05, 10)+Math.pow(1.05, 11)+Math.pow(1.05, 12)+Math.pow(1.05, 13)));  
 \*/  
 }  
}

Q3: (1) One is to define another array in the method [5 points]:

public static void CheckDuplicate\_1(int[] arr) {  
// your solution here  
 int[] newArr = new int[arr.length];  
 boolean hasDuplicate = false;  
 boolean seen0 = false;  
 label:  
 for (int i = 0; i < arr.length; i++) {  
 for (int k : newArr) {  
 if (arr[i] == 0 && !seen0) {  
 seen0 = true;  
 break;  
 } else if (arr[i] == 0 && seen0) {  
 hasDuplicate = true;  
 break label;  
 } else if (arr[i] == k) {  
 hasDuplicate = true;  
 break label;  
 }  
 }  
 newArr[i] = arr[i];  
 }  
// System.out.println(Arrays.toString(newArr));  
// System.out.println(count0);  
 if (hasDuplicate) {  
 System.*out*.println("Yes Duplicate");  
 } else {  
 System.*out*.println("No Duplicate");  
 }  
 }

(2) The other is NOT to define another array in the method [5 points]:

public static void CheckDuplicate\_2(int[] arr) {  
// your solution here  
 boolean pin = false;  
// int counter = 0;  
 label:  
 for (int i = 0; i < arr.length; i++) {  
 for (int j = i + 1; j < arr.length; j++) {  
// counter ++;  
 if (arr[i] == arr[j]) {  
 pin = true;  
 break label;  
 }  
 }  
 }  
 if (pin) {  
 System.*out*.println("Yes Duplicate");  
 } else {  
 System.*out*.println("No Duplicate");  
 }  
// System.out.println(counter);  
 }