

## Q1. Warm Up!

### 1. Statements for the following:

- a) `char letter;`
- b) `letter = "A";`
- c) `System.out.println(letter);`

### 2. floating-point or integer?

I believe the program will run an error.

These are int literals and the program will not accept them as floating-point numbers.

After running my program to confirm this, I found that I was incorrect.

The program converted the int literals to the floating-point data type and printed the result as 23.0.

### 3. Double b to Float a

```
public class DoubleToFloat {  
    public static void main (String[] args) {  
        double a = 23.324;  
        float b = (float) a;  
        System.out.println(b);  
    }  
}
```

### 4. Valid Declaration Statements

- a) `int x;` ☒
- b) `int y = 2;` ☒
- c) `int x, y;` ☒
- d) `int x, y = 2;` ☒

## Q2. Miles per Gallon

```
import java.util.Scanner;  
  
public class MilesPerGallon {  
    public static void main (String[] args) {  
        Scanner input = new Scanner(System.in);  
        System.out.print("Enter the number of miles that were driven: ");  
        double miles = input.nextDouble();  
        System.out.print("Enter the number of gallons used for the trip: ");  
        double gallons = input.nextDouble();  
        double mpg = miles / gallons;  
        System.out.println("Your miles per gallon (mpg) is: " + mpg);  
        input.close();  
    }  
}
```

## Q3. String Class Methods

```

import java.util.Scanner;

public class CityStringTricks {
    public static void main (String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter your favorite city and I'll show you something cool: ");
        String favCity = input.nextLine();
        int cityLength = favCity.length();
        String upperCaseCity = favCity.toUpperCase();
        String lowerCaseCity = favCity.toLowerCase();
        char firstLetter = favCity.charAt(0);
        System.out.println("Ok, here's the cool stuff:");
        System.out.println("Your favorite city is " + cityLength + " characters long.");
        System.out.println("In all uppercase, that's " + upperCaseCity + ".");
        System.out.println("In all lowercase, that's " + lowerCaseCity + ".");
        System.out.println("The first letter is '" + firstLetter + "'.");
        input.close();
    }
}

```

## Q4. Tax and Tip

```

import java.util.Scanner;

public class TaxAndTip {
    private static final double TAX_RATE = 0.0675;
    private static final double TIP = 0.20;
    public static void main (String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Please enter the cost of your meal: $");
        double initialBill = input.nextDouble();
        double tax = initialBill * TAX_RATE;
        double tip = (initialBill + tax) * TIP;
        double totalBill = initialBill + tax + tip;
        System.out.printf("With the cost of the meal at $%.2f\n", initialBill);
        System.out.printf("The tax is: $%.2f\n", tax);
        System.out.printf("The tip is: $%.2f\n", tip);
        System.out.printf("Your total is: $%.2f\n", totalBill);
        System.out.println("Thank you for dining with us!");
        input.close();
    }
}

```

## Q5. Class Ratio

```

import java.util.Scanner;

public class ClassRatio {
    public static void main (String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("This is an exercise to compute the ratio of boys to girls.\n ");
        System.out.print("Please start by entering how many male students are in the class: ");
        int maleStudents = input.nextInt();
        System.out.print("Now enter the number of female students in the class: ");
        int femaleStudents = input.nextInt();
        int totalStudents = maleStudents + femaleStudents;
        double maleRatio = (double) maleStudents / totalStudents;
        double femaleRatio = (double) femaleStudents / totalStudents;
    }
}

```

```

        System.out.printf("The ratio for male students is: %.2f%n", maleRatio);
        System.out.printf("The ratio for female students is: %.2f%n", femaleRatio);
        System.out.println("Congratulations!!!...");
        input.close();
    }
}

```

## Q6. Madlibs

```

import java.util.Scanner;

public class Madlibs {
    public static void main (String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.println("Let's make a quick story! I'll ask the info\n" +
            "and then tell you the story.");
        System.out.print("Start with a name...any name: ");
        String name = input.nextLine();
        System.out.print("Now, give me an age: ");
        int age = input.nextInt();
        input.nextLine();
        System.out.print("Next, a city: ");
        String cityName = input.nextLine();
        System.out.print("Now a college: ");
        String college = input.nextLine();
        System.out.print("Next, a profession: ");
        String profession = input.nextLine();
        System.out.print("Now, a type of animal: ");
        String animal = input.nextLine();
        System.out.print("Finally, a pet's name: ");
        String petName = input.nextLine();
        System.out.println("Here's your story:");
        System.out.println("There once was a person named " + name + " who lived in " + cityName + ".\n"
            + "At the age of " + age + ", " + name + "went to college at " + college + ".\n"
            + name + " graduated and went to work as a " + profession + ".\n"
            + "Then, " + name + " adopted a(n) " + animal + " named " + petName + ".\n"
            + "They both lived happily ever after!");
        input.close();
    }
}

```

## Q7. Cookie Recipe

```

import java.util.Scanner;

public class CookeRecipe {
    private static final double CUPS_SUGAR = 1.5;
    private static final double CUPS_BUTTER = 1.0;
    private static final double CUPS_FLOUR = 2.75;
    private static final double RECIPE_YIELD = 48.0;

    public static void main (String[] args) {
        Scanner input = new Scanner (System.in);
        System.out.print("How many cookies do you want to make? ");
        double wantedCookies = input.nextDouble();
        System.out.println(
            "Let's do a ratio!\n"
            + "This recipe makes " + RECIPE_YIELD + " cookies with the following ingredients:\n"
            + "\t" + CUPS_SUGAR + " cups of sugar\n"
            + "\t" + CUPS_BUTTER + " cups of butter\n"

```

```

        + "\t" + CUPS_FLOUR + " cups of flour\n\n"
        + "=====\n\n"
    );
    System.out.printf(
        "To make %.1f cookies, you will need:%n" +
        "\t%.2f cups of sugar%n" +
        "\t%.2f cups of butter%n" +
        "\t%.2f cups of flour%n" +
        "Enjoy your cookies!",
        wantedCookies,
        (CUPS_SUGAR * wantedCookies / RECIPE_YIELD),
        (CUPS_BUTTER * wantedCookies / RECIPE_YIELD),
        (CUPS_FLOUR * wantedCookies / RECIPE_YIELD)
    );

    input.close();
}

}

```