



Here are the solutions to all the questions from Tutorial 1:

Question 1: Program to read the radius of a sphere and output its volume and surface area

The formulas needed are:

- Volume: $V = \frac{4}{3}\pi r^3$
- Surface Area: $A = 4\pi r^2$

```
import java.util.Scanner;

public class Sphere {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter the radius of the sphere: ");
        double radius = input.nextDouble();

        double volume = (4.0/3) * Math.PI * Math.pow(radius, 3);
        double surfaceArea = 4 * Math.PI * Math.pow(radius, 2);

        System.out.println("Volume of the sphere: " + volume);
        System.out.println("Surface area of the sphere: " + surfaceArea);
    }
}
```

Question 2: Program to read a distance in miles and return the value in kilometers

Conversion factor: 1 mile = 1.60934 kilometers.

```

import java.util.Scanner;

public class DistanceConverter {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter distance in miles: ");
        double miles = input.nextDouble();

        double kilometers = miles * 1.60934;

        System.out.println("Distance in kilometers: " + kilometers);
    }
}

```

Question 3: Program to input temperature in degrees Celsius and output in Fahrenheit

The conversion formula is:

- Fahrenheit = (Celsius * 9/5) + 32

```

import java.util.Scanner;

public class TemperatureConverter {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter temperature in Celsius: ");
        double celsius = input.nextDouble();

        double fahrenheit = (celsius * 9/5) + 32;

        System.out.println("Temperature in Fahrenheit: " + fahrenheit);
    }
}

```

Question 4: Program to convert currency from dollars to rupees

```
import java.util.Scanner;

public class CurrencyConverter {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter amount in dollars: ");
        double dollars = input.nextDouble();

        System.out.print("Enter exchange rate (1 dollar to rupees): ");
        double exchangeRate = input.nextDouble();

        double rupees = dollars * exchangeRate;

        System.out.println("Amount in rupees: " + rupees);
    }
}
```

Question 5: Program to calculate pocket money for parents and children based on salary distribution

```
import java.util.Scanner;

public class SalaryDistribution {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter the salary: ");
        double salary = input.nextDouble();

        System.out.print("Enter the number of children: ");
        int children = input.nextInt();

        // Salary distribution
        double generalExpenditure = salary / 2; // Half goes to general expenditure
        double remaining = salary - generalExpenditure;

        double fuelExpenditure = remaining / 3; // One-third for fuel
        remaining = remaining - fuelExpenditure;

        double savings = remaining / 3; // One-third goes to savings
        double shareForFamily = remaining - savings; // The rest is for family

        // Parents get twice as much as children
        int totalMembers = children + 2; // Two parents + children
        double childPocketMoney = shareForFamily / (totalMembers + children); // Each parent
        double parentPocketMoney = 2 * childPocketMoney;

        System.out.println("Pocket money for one parent: " + parentPocketMoney);
        System.out.println("Pocket money for one child: " + childPocketMoney);
    }
}
```

Let me know if you need further clarification or explanation on any of the programs!